THE METERED PARKING LOT in front of City Hall, Temple, Texas, and officials who opened it (left to right)—City Manager W. E. Routh; City Commissioners L. B. Jenkins and Winston L. Liles; Mayor C. L. Walker, Jr., and City Commissioners Shirley Richards and H. F. Blum. *(See page 137.)*

1912

Constructing a Texaco Asphaltic Concrete pavement on an old macadam street in Chicago.

Paving City Streets with Asphalt

Constructing the same type of Texaco Asphalt paving over old granite block in New England.

TODAY

During the interval of almost 40 years between the construction of these two Texaco Asphalt pavements, there have been important developments in equipment and methods. The result is better asphalt paving for today's traffic, constructed with greater speed and, consequently, with less inconvenience not only to traffic, but also to business men and home owners along the street being paved.

The contractors who constructed these two pavements employed radically different equipment, but their choice of asphalt was the same —Texaco. Forty years ago and today, Texaco Asphalt was and continues to be refined from scientifically selected crudes. Its quality carefully maintained to meet the most exacting specifications, this product has provided durable, economical asphalt paving for streets of more than 1,500 representative U. S. cities during the past 45 years.

Whether your city plans to construct streets, airport runways or parking areas, there is a Texaco Asphalt Cement, Cutback Asphalt or Slow-curing Asphaltic Oil exactly suited to your requirements. Two helpful booklets which describe the various types of asphalt construction appropriate for municipal projects may be obtained free by writing our nearest office.

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TEXACO

REG. T.M.

TEXACO ASPHALT

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HAROLD S. BUTTENHEIM, Editor
ALDEN W. WELCH, Secretary, Research Editor
WILLIAM S. FOSTER, Engineering Editor
CARL ERIC CARLSON, Associate Editor
CAROL W. HIGHTOWER, Production Editor

EDGAR J. BUTTENHEIM, President
GEORGE S. CONOVER, Vice-President
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Lt. EDGAR M. BUTTENHEIM, Asst. Adv. Mgr. (On leave of absence for military duty)
EDNA A. JONES, Production Manager

BRANCH OFFICES
Daily News Building, Chicago 6
George S. Conover, Warner H. Robinson

2338 Ben Lomond Drive, Los Angeles 27
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Albert T. Miller, *Pacific Coast Manager*

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See pages 21, 23, 26, 28, 30, 32, 153, 154, 159, 161, 165 for catalogs and publications on municipal subjects.

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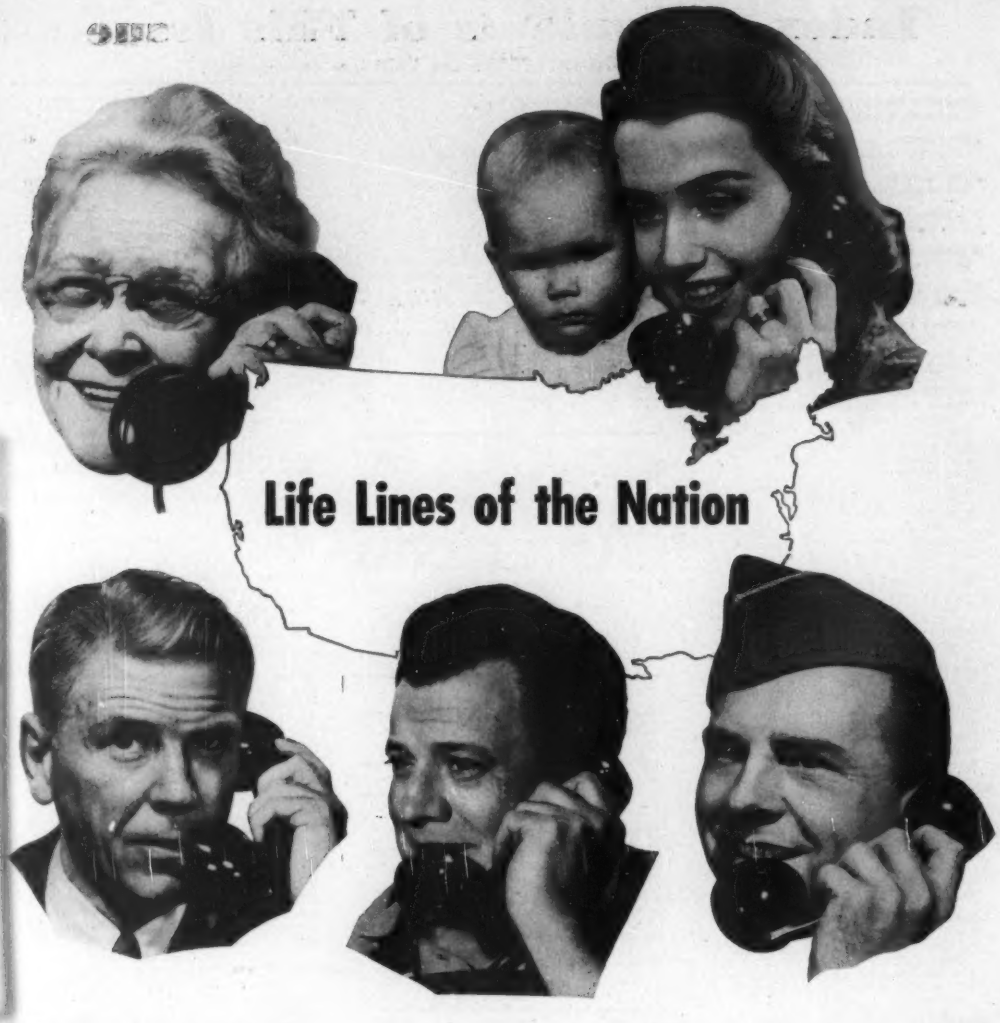


Life Lines of the Nation

Telephone lines are the life lines of the Nation. Day and night they unite millions of people. They are a vital, increasing part of national defense.

Because telephone service is so essential, we'd like to talk to you very frankly about two things that make it possible. They are reasonable rates and earnings.

Without reasonable rates, there is no way to continue the good service you know today. Without reasonable earnings, there is no way to make it better.

Despite the billions of dollars the Bell System has spent in the last six years, telephone facilities are still heavily loaded and a tremendous amount of new construction is needed. On top of the increasing demands from the public are the vital needs of defense.

The money for new telephone facilities must come, in the future as it has in the past, largely from investors . . . from hundreds of thousands of men and women who are willing to invest their savings in the business.

Only through reasonable earnings can the telephone company attract the new money that is necessary to do the job.

BELL TELEPHONE SYSTEM

Our Municipal Notebook

Mayors Assert Change Needed in Civil Defense Program

A CRISIS conference on civil defense was sponsored by the American Municipal Association in Detroit on June 19, with Mayors Albert E. Cobo of Detroit, William F. Devin of Seattle, and Frank P. Zeidler of Milwaukee as co-sponsors. The conference, attended by mayors and civil-defense directors of 36 cities, resulted from recent Congressional action on appropriations which seriously imperils the entire civil-defense program.

The group pledged its support of a $550,000,000 appropriation for civil-defense purposes in the fiscal year beginning July 1. It demanded that Congress acknowledge the program as an integral part of the nation's security and appropriate adequate funds to protect industrial centers turning out equipment for the fighting forces.

The group also approved the draft of a letter to President Truman and Congress calling for a review of national policy on civil defense. "Civil defense is either necessary or it is not," the letter said. "Congress should make the decision quickly. Unless it does, the civil-defense program will disintegrate rapidly."

Performance-Type Budget Commended In Richmond, Va.

UNUSUAL public recognition of the importance of sound municipal-budgeting principles was accorded by Vice-Mayor A. Wilson, of Richmond, Va., in a speech before the City Council during consideration of the new general fund budget in May. Mr. Wilson said:

In the light of our experience in Richmond during the past three years, it properly can be said that our budget system is the very heart of our managerial government—the chief organ through which we achieve effective and efficient municipal administration.

How, except through effective budget planning and control, could this government in these times of spiraling costs, when other governments are increasing tax burdens or incurring deficits or both—how could we conclude two fiscal years in succession with over a million dollars in surplus?

He also pointed out the many shortcomings of the "line budget" type of appropriation ordinance or budget used previously, which, he said, throttles administrative initiative and discretion and control:

The first budget which this unicameral council adopted was a detailed listing of what items the city bought to perform its many functions. It said nothing about the functions themselves. Among its 216 objects of expenditure were included such items as "forage," "electric repairs," and "shovel hire." Now we, as responsible leaders of this government, and our citizens, as purchasers of municipal services, are not interested in how many shovels we hire, but we are interested in how many shovelfuls of material are moved, for what purpose and at what unit cost.

Five Basic Questions

The Council should be concerned with the following basic questions regarding the budget:

1—Does it meet the needs of the community adequately, or as adequately as available finances will permit?

2—Does it provide proper balance between various activities, especially as between more essential and less essential services?

3—Are there work programs which assure adequate results and proper standards of service?

4—Is the budget sound and realistic? Does it estimate revenues properly? Does it contain necessary funds for all expenditures as well as emergency funds?

5—Is it economical, not in terms of dollar slashing but on the basis of what the dollar is buying?

Those are some of the questions, not how many shovels we have hired, that our performance-type budget attempts to answer.

SHERWOOD REEDER
City Manager
Richmond, Va.

Code Unification Group Elects New Officers

THE Joint Committee on Unification of Building Codes held its ninth meeting since its organization in 1949, on June 8 and 9, in Washington, D. C.

The Committee has reported the election of A. H. Baum, of St. Louis, Mo., Past-President of the Building Officials Conference of America, to the chairmanship of the group. He succeeds W. E. Mallilieu, who recently retired as General Manager of the National Board of Fire Underwriters, New York City, and has served as chairman of the JCUBC since its organization. Gilbert R. Barnhart, of the Housing and Home Finance Agency, Washington, D. C., was elected Secretary of the JCUBC succeeding John B. Courtney of the American Standards Association, who passed away during the time of the March meeting in New Orleans.

Continued progress in its informal activities is reported by the JCUBC. The recommendations of the group are being studied by the constituent organizations several of whose comments were considered by the group at its last meeting.

The following organizations are participants in the activities of the JCUBC:

American Standards Association, Inc.
Building Officials Conference of America, Inc., and the Building Officials Foundation
Housing and Home Finance Agency
National Board of Fire Underwriters
National Bureau of Standards
National Fire Protection Association
Pacific Coast Building Officials Conference
Southern Building Code Congress
Underwriters' Laboratories, Inc.
U. S. Department of Commerce (Construction Division)

The American City Quiz

Match Wits With the Experts

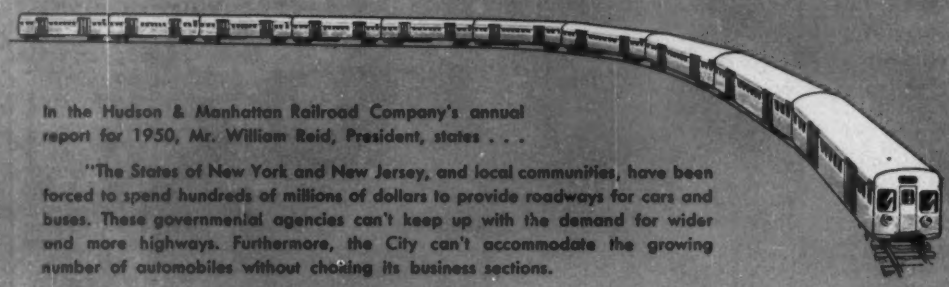
QUESTIONS

1. *What pollution problem in water supply is associated with "blue babies"?*
2. *Are assessments for street improvements properly carried by abutting property owners only?*
3. *What proportion of fire alarms are false?*
4. *Can the sanitary landfill method of refuse disposal be operated successfully in cold weather?*
5. *How effective is the metallizing of steel plated with zinc as an anti-corrosion measure for elevated water tanks and structures?*
6. *What city has adopted the use of the kitchen grinder as an integral part of its refuse-disposal program?*
7. *How often should flexible-base asphalt streets be sealed?*
8. *Is water-works construction any safer now than it was in past years?*
9. *Which is preferable: a floor-dump type of incinerator, or one having a storage pit and a crane and bin?*
10. *Has the virtual disappearance of foot patrol from residential areas created a hazard, and is there any safety measure that can meet it?*

(Answers on page 9)

"Food for THOUGHT and ACTION"*

TOWARD REDUCING TRAFFIC CONGESTION



In the Hudson & Manhattan Railroad Company's annual report for 1950, Mr. William Reid, President, states . . .

"The States of New York and New Jersey, and local communities, have been forced to spend hundreds of millions of dollars to provide roadways for cars and buses. These governmental agencies can't keep up with the demand for wider and more highways. Furthermore, the City can't accommodate the growing number of automobiles without choking its business sections.

*"A 10-car subway train during rush hours carries 1,600 passengers and is operated by 3 men. It would require 25 buses, with 25 drivers, to carry the same number of passengers.

"Buses during rush hours carry an average of sixty-five passengers. Automobiles, carrying anywhere from one to six persons in a car, average 1.7 persons on weekdays and 2.2 on weekends.

"It is evident that commuter travel on rubber, inherently inefficient and costly, can never provide an adequate solution to the mass transportation problem."

Modern light weight P.C.C. rapid transit cars built for Chicago by St. Louis Car Company. 130 have been delivered—70 more being built. 40 of this type under construction for Boston.

SKIP and TRAVEL BY RAIL

Transit, city and state officials, planning engineers and governmental agencies are more and more recognizing that a sound progressive program is required to meet present transit problems.

In major communities the P.C.C. type rail rapid transit car is evidence of a forward stride in solving the problem in a practical and economical manner. That is why Transit Authorities in Chicago and Boston have ordered this type of equipment and other major communities are planning to do so. With this in mind, studies are being made in many cities where increased traffic has resulted in intolerable street traffic jams.

St. Louis Car Company

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U. S. Mayors Meet with Canadians

WITH an attendance of some 300 delegates, representing municipalities in all 10 provinces of the Dominion, the Canadian Federation of Mayors and Municipalities held a very helpful and well-organized meeting in London, Ont., June 11-13. At this 14th annual conference of the Federation, guests from the United States included, among others, six mayors: C. Henry Bloom, of Rockford, Ill.; Thomas J. Corcoran, of Syracuse, N. Y.; Charles Farnsley, of Louisville, Ky.; James N. House, of Jackson, Mich.; Edwin G. Michaelian, of White Plains, N. Y., and Frank P. Zeidler, of Milwaukee, Wis.

Similarity of Problems

No visitor from the United States could fail to be impressed with the similarity of the problems now confronting local governments on both sides of the border. Such questions were discussed, for example, as the dominance of rural votes in the provincial parliaments; the lack of adequate home-rule powers for municipalities; confusion as to responsibilities for organizing and financing civil-defense programs; the urgency of more effective planning and zoning in the fringe areas of cities; the need for more accurate real-estate assessment and for new sources of municipal revenues; federal aid to housing and to local highways; federal taxation of municipal bonds; traffic and parking problems; municipal public relations, etc.

The program provided for an excellent combination of general and seminar sessions. At three luncheons and two banquets, the delegates were the guests of the Province of Ontario and the Cities of London, Stratford (and Perth County), Hamilton, Kitchener, and Waterloo.

Resolutions Freely Discussed

A hard-working Resolutions Committee submitted 36 resolutions for consideration and action by the Conference. Most of these were discussed with a thoroughness not always characteristic of similar gatherings in the United States.

A highly controversial question related to lotteries for charitable purposes. The Resolutions Committee found the subject so hot that it reported without recommendation a resolution submitted by the City of Vancouver, which would have put the Federation on record as favoring an amendment to the Criminal Code of Canada "to permit the holding of lotteries by charitable organizations and community associations for the purpose of raising funds for charitable and community purposes."

Discussion on the floor of the convention revealed wide differences of opinion among the mayors and other local officials. The great difficulty of drawing the line between worthy and unworthy organizations was emphasized, as was also the small percentage of the "take" which would generally accrue to the beneficiaries. One delegate exclaimed, "If we are going to sin, let's make some money out of it." Lacking a meeting of minds, action was deferred for future consideration.

Public Works

One of the constructive resolutions adopted recommended that:

Whenever unemployment, national or regional, reaches an abnormal percentage of the total employable work force, national or regional, a public-works program be immediately instituted in order to pick up the slack, with a view to maintaining at all times, and as far as is possible, full employment throughout the nation.

A strong difference of opinion as to the proposed St. Lawrence Development resulted in approval, by sharply divided vote, of a resolution submitted by the City of Toronto, that:

In view of the great increase in cost of power to municipalities if steam generation must be used, the Canadian Federation of Mayors and Municipalities petition the Federal Government to proceed with the St. Lawrence Development immediately, to provide low-cost power, readily available by harnessing the St. Lawrence River, at a time when such low-cost power is so necessary and vital in the interests of the general economy of the nation, and the armed preparedness program which is affecting the production of so many of our war industries.

An impressive feature of the final session of this Canadian conference was the "Act of Dedication," to which all delegates and their families were invited. Believing this feature to be worthy of emulation in the United States, THE AMERICAN CITY will present several excerpts from the ceremony in an early issue.

Mayor Percy T. George, of Victoria, was elected president of the Federation for the ensuing year, and Calgary was elected as the meeting place for the 1952 conference. George S. Mooney continues as executive director, with offices in the Mount Royal Hotel, Montreal.

New Officers of New York State Mayors' Conference

MAYOR Addison Mallery, of Saratoga Springs, was elected president of the New York State Conference of Mayors and Other Municipal Officials, at the 42nd annual meeting of that organization, held in Niagara Falls, N. Y., June 14 to 16. Other officers elected included the following:

Henry Waldinger, Mayor of Valley Stream, 1st Vice-President

Edwin G. Michaelian, Mayor, White Plains, 2nd Vice-President.

Erastus Corning II, Mayor of Albany, Treasurer

Elected to the Bureau Council for a two-year term were:

Mayor Donald W. Kramer, Binghamton, Chairman

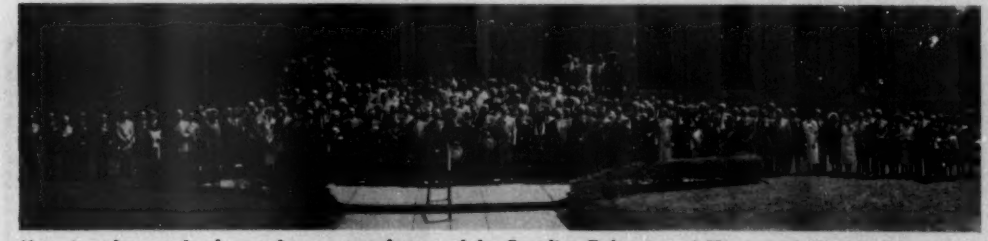
Mayor John J. Tyrell, Plattsburgh

Village Manager Reeves Newsom, Scarsdale

Mayor Herbert R. Renison, Westbury

Mayor T. E. Barhite, Medina

Of the many subjects discussed at the various sessions, civil defense got the major attention. A resolution adopted by the Conference at its final



Above is a photograph taken at the recent conference of the Canadian Federation of Mayors and Municipalities, which was also attended by U. S. officials; the delegates are posed in front of the public library in London, Ontario.

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CO. or DEPT._____

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CITY_____ STATE_____

session urged the United States Congress to enact the necessary legislation to provide for at least 80% of the cost of an adequate program for emergency civil-defense needs and for a long-range civil-defense program, including shelters, traffic facilities, hospital extensions, fire, police, and miscellaneous construction."

The Lake Placid Club in the Adirondacks was selected as the meeting place for the 1952 Conference.

Housing Not Hit by Credit Restraint Program

LOANS financing federally aided low-rent public-housing projects and slum-clearance and urban-redevelopment projects are not intended to be limited by the Program for Voluntary Credit Restraint, Administrator Raymond M. Foley of the Housing and Home Finance Agency informed local public agencies in June. Mr. Foley pointed out that such projects are subject to direct control by the federal agencies administering these programs.

Clarification in regard to such loans was made in an exchange of letters between Mr. Foley and Oliver S. Powell, member of the Board of Governors of the Federal Reserve System and chairman of the Voluntary Credit Restraint Committee. Mr. Foley had requested the clarification because of queries from local public bodies.

Mr. Powell, in replying to Mr. Foley, declared:

> You are advised that the Program of Voluntary Credit Restraint does not apply to loans on public housing agencies carrying out low-rent public-housing projects assisted under the United States Housing Act of 1937, as amended, or slum-clearance and urban-redevelopment projects, assisted under Title I of the Housing Act of 1949.

TV Cuts Chicago's Tax Take

TELEVISION has not only made inroads into the box-office receipts of motion picture theatres, but it is also knocking the take of the city tax collector.

According to the Municipal Finance Officers' Association, this is cogently pointed up by statistics recently released by Chicago's collector. There, the city's amusement-tax receipts dropped from $1,620,211 in 1949 to $1,307,253 in 1950. In the first four months of 1951, the receipts are more than $105,000 below the same period last year.

Not only is the city losing on declining box-office receipts, but its license-fee take is also down, as more and more movie houses are forced to close. Since January 1948 at least 55 movie houses have nailed up their doors, city records show. But the movies are not the only form of recreation being hit. Amusement taxes from other activities such as bowling, billiards, and athletic events are off about $2,000 a week.

A Year of Rededication

A "YEAR OF REDEDICATION" to the principles of American democracy is being inaugurated with community celebrations throughout the nation on July 4th, the 175th Anniversary of the Declaration of Independence. Shown above is the design which is being used in car cards and outdoor posters.

The President of the United States has established a seven-member Commission for the Commemoration. Cooperating with the U. S. Commission are The American Heritage Foundation (sponsor of the Freedom Train), and the Advertising Council, the public service organization supported by American business and advertising.

The American City Quiz

ANSWERS TO QUESTIONS ON PAGE 5

1. The nitrate content in the water is sometimes a cause of "blue baby" disease. Warren J. Scott, Director, Bureau of Sanitary Engineering, Connecticut Department of Health, feels that water with a nitrate content above 50 ppm should be condemned. He believes that there is little or no danger if the content is below 20 ppm.

2. In a great number of cases, the effort seems to be aimed at spreading the assessment over the benefited area. Oklahoma City is an example. Here, street-paving costs are assessed against the entire city block. The first third of the block depth carried 50%; the next third, 30%, and the final third, 20%. Intersection costs are spread back over a quarter of the block.

3. Between 1947-48, fire chiefs in 585 cities reported a total of 761,504 alarms of which 60,268, or about 8%, were false. In 2.7% of the cases, the police were able to apprehend the person who sent in the false alarm.

4. Tests at Mundan, N. D., indicate that it can. Here the landfill work was conducted when the temperatures dropped as low as 44 degrees below zero. The dirt stockpiled in the fall never froze so solidly that the tractor could not handle it. The work was conducted with a Caterpillar tractor with a Traxcavator bucket.

5. According to the Metallizing Engineering Company, Long Island City, N. Y., the effectiveness can be measured in terms of about 25 years. Costs run around 75 cents per square foot.

6. Jasper, Ind., was the first to take this step when it abolished garbage collection as such, and passed enabling legislation making it possible for the householders to install grinders at a relatively low cost. Lakewood Village, probably the world's largest real-estate development, located in the suburbs of Los Angeles, has a grinder in every home. But this was at the choice of the builder and not by municipal action.

7. Wichita, Kans., likes to resurface these streets once every two years. The city applies RC-3 cutback asphalt with a Standard Steel distributor at the rate of 0.25 gallons per square yard. A Good Roads spreader places rock chips at the rate of 25 pounds per square yard.

8. The work being conducted in Cleveland, Ohio, indicates rather dramatically that it is. The present water-intake tunnel is being built twice as fast as the tunnel previously built. The former cost 38 lives. No lives have been lost in the present work.

9. There are strong arguments for both. If the floor dump incinerator is used, however, the furnace capacity must be large enough to receive refuse at a peak period during the day. Mount Vernon, N. Y., uses the floor-dump design to burn 125 to 155 tons of refuse per day. To do this, the incinerator uses four Nichols Monohearth furnaces, each rated at 150 tons per 24 hours.

10. The virtual disappearance of foot patrol from residential areas has made it difficult or impossible for a citizen to quickly find a patrolman when he needs one. Even public-telephone service is not generally available in the poorer districts, and is not always available to pedestrians and others outside buildings who may be attacked or observe suspicious actions or crimes in process of being committed. Arranging patrol boxes so that access may be had to the telephone and emergency signaling levers should go far toward eliminating this difficulty.

How Distributed Elevated Storage Helps Fort Worth

FORT WORTH, TEXAS, has five different pressure planes in its water distribution system. Each is, in reality, a separate water system with its own elevated storage and distribution mains. The unifying factor is the central pumping station that supplies water to all five districts.

Recently, the 2,000,000-gallon Horton tank shown above was installed in the southern pressure area. It boosts elevated storage capacity 400 per cent and provides more uniform water pressure. This tank has a relative large diameter and shallow depth which reduces the range in head between the upper and lower water levels. As a result, pumping costs are substantially lower.

Many cities throughout the country depend on distributed elevated storage to increase water pressure, lower pumping costs, and provide a reserve of water for emergencies. Write our nearest office for quotations and complete information without obligation.

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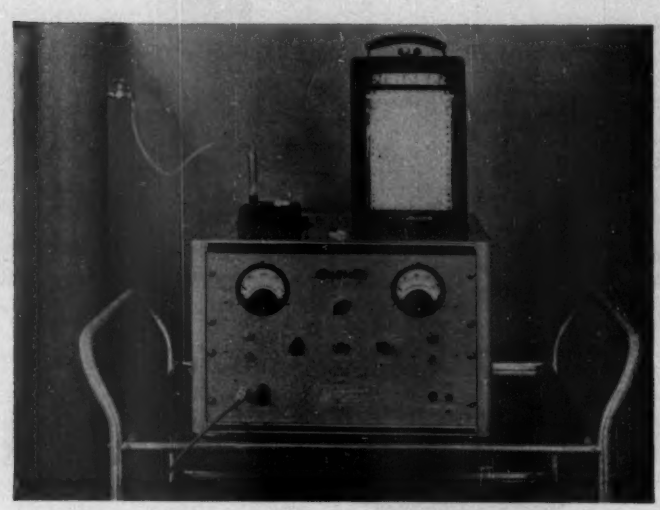
Water Supply and Treatment

War Can Be a Menace to Air and Water



Monitor for continuous testing to register any radioactivity present in water.

WITH the possibility of an atomic bomb blast or radiological sand being scattered by enemy air-borne craft, or radioactive substances being planted in water supplies by stealth, devices for detection of radiological hazards are required to protect civilians and plant employees.

For civil-defense councils and police and fire departments, the necessary devices can be assembled in a mobile unit, similar to a rescue truck or automobile. A factory-built unit of this kind is offered by Radiation Counter Laboratories, Inc., Chicago, Ill. Called an "Atomobile," the completely enclosed new-type truck with its own generator to provide electricity for detecting equipment will be of interest to local officials. The truck body is 12½ feet long, with 426 cubic feet capacity, and lighted by two rows of fluorescent tubing.

Technicians driving this mobile laboratory would speed to the scene of the blast, determine immediately if radioactivity were present, identify the type of radiation, and measure its danger. They could tell how far the radioactivity extended. The instruments the unit carries are also capable of analyzing the city's water supply to detect presence of radioactive material carried by bomb burst or radiological sabotage.

This type of sabotage can happen in any town or city. An instrument is available for measuring the lethal quantities of this radioactive poison: the water monitor, made by the Radiation Counter Laboratories. The process is simple and designed to perform automatically for the most part, with the results of the monitor recorded on a graph that will clearly indicate the presence of radioactive materials in the water.

The Radiation Counter Laboratories recommend that a dual installation be made so that comparative tests can be taken. Operation and maintenance of this monitor may be done mostly by employees of the municipality, with little instruction.

The monitor is installed by simply taking from the main water line a constant flow sample that is in continuous contact with a Geiger-Muller counter. The voltage pulses from the Geiger counter which enter the electronic circuit are indicated on the instrument panel of the circuit setting forth the voltage impulses per minute. If radioactivity enters the water the needle will mount to a peak that will indicate quickly and clearly the intensity of the radioactive material present. If some types of radioactive compounds are taken into the human system in the amount of *one millionth* of a gram, the result can be lethal.

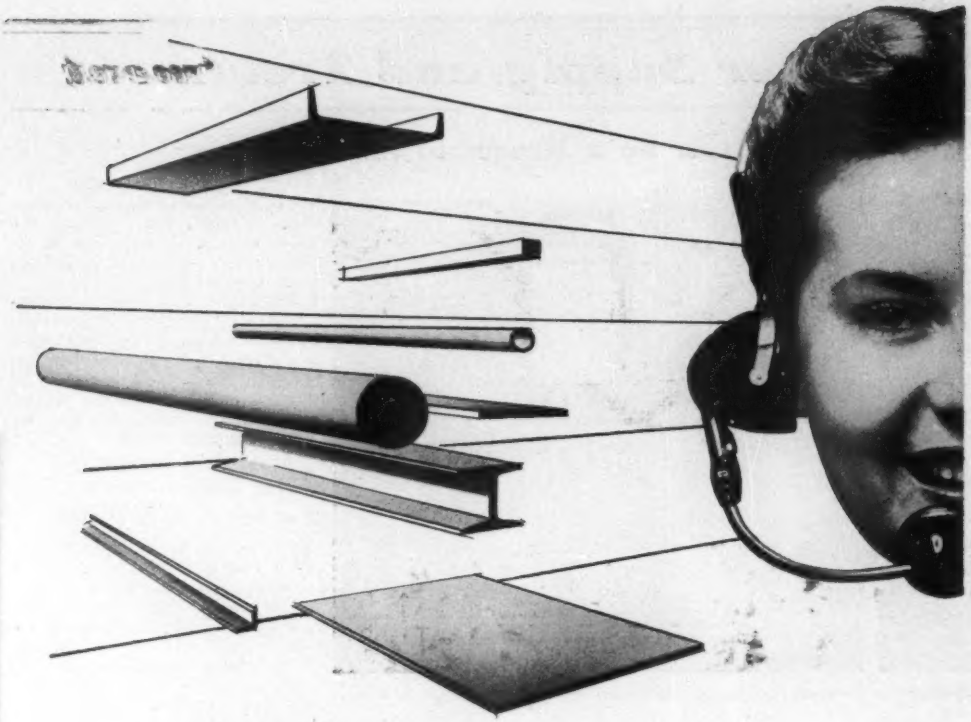
In the event of an emergency, water-drinking will have to be guided by detection equipment as described above, and as a concrete step forward in preparing for such an emergency the Radiation Counter Laboratories believes that their water monitor is a necessary part of every water supply.

Extra Height For Levelland's Water

FOUR HUNDRED THOUSAND gallons of water 100 feet in the air was one of the most important parts of the water improvement that took place recently in Levelland, Texas. The tank is an all-welded structure erected by the Chicago Bridge and Iron Company. In addition, the city installed 18,000 lineal feet of 8-inch cast iron water mains, 20,000 feet of 6-inch mains, 27,000 pounds of cast iron fittings, 36 interconnections, twenty 8-inch valves, thirty 6-inch valves, two 4-inch valves, and 56 fire hydrants. The mains are bell-and-spigot pipe supplied by National Cast Iron Pipe Division. The valves, hydrants, and fittings are a products of the Iowa Valve Company.

The project was completed last summer under the direction of Ray Drain, City Manager.

In Levelland, Texas, this new 100-foot elevated tank is an important landmark.



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Refuse Collection and Disposal

Burbank Makes a Parkland from Trash Dumps

A panoramic view of the Burbank reclamation project—soon to be a park road.

By HOWARD I. STITES
City Manager
Burbank, Calif.

BURBANK, Calif., doesn't maintain a trash "disposal" facility. It does have a "reclamation project." This is the way it works:

All rubbish (combustible and noncombustible) except garbage and dead animals, has for many years been placed on an open dump in Sun Valley, six miles from the city limits. This dumping area not only required an expensive, empty return haul, but also finally became completely filled. The people of Burbank throw away approximately 38,000 tons of rubbish a year. The city had to haul it a total of 225,360 ton-miles annually to the disposal point. The use of the dumping area, in addition, involved a fee paid by the city that also ran up costs. City officials considered building an incinerator, but still had to face the problem of disposing of the burned residue, in addition to meeting the high construction costs.

Park Road Needed

But Burbank had another problem under consideration—a beautiful park, capable of expansion, backed against the mountain side, but without the roads to make an enlarged park area readily available to the public. So out of the combination of the two problems evolved the "reclamation project." Instead of digging a hole to be filled with rubbish and covered, why not spread the rubbish—compress it flat, cut dirt from the side hills, roll and wet to solid compactness, and reclaim the gully or ravine land complete with roads? That was the poser.

Clayton Paige, our City Engineer felt that it could be done. From previous experience on mountain-road-building methods, this looked no more difficult than many other problems he and his staff had faced.

It was essential that the rubbish be compacted as solidly as possible. This required the use of two Caterpillar tractors with dozer blades, one a D-7 and the other a D-8. Each layer of rubbish is spread and compressed to a thickness of about 3 feet with a layer of dirt in between. The loose dirt is compacted on each layer and each section is tamped by a D-4 tractor pulling a heavy sheep's-foot roller. Water is sprayed over the surface to bring the soil to maximum density consistent with mountain road-building specifications. This practice eliminates any possibility of odor, as well as pest infestation.

The disposal system is resulting in a cost savings of approximately $100,000 per year. Previous rubbish-disposal costs averaged $125,000 annually. The city saves an estimated $25,000 annually by being able to use the reclamation fill without paying a fee. The short haul saves time and manpower in collection and return-trip time, representing a 20% reduction on the estimated $25,000-per-year cost of collection under the previous system. In detail, the cost of operation of the reclamation fill is as follows:

	Annual Cost
Salaries—three men, each $12 per day	$11,250
Equipment rental	11,250
Miscellaneous	2,500
Total cost	$25,000
Gross savings	$125,000
Less cost	25,000
Net savings	$100,000

Rubbish is collected once a week in Burbank. It is placed in containers not to exceed 80 pounds gross. Tree and shrubbery cuttings are required not to exceed 4 feet in length and 6 inches in diameter. These dimensions equal the maximum that closed trucks can handle. The material is collected in three 15-yard Gar Wood load packers, three 15-yard Leach refuse getters, and four open-bed trucks. The closed-body trucks have compressor equipment that makes it possible for each one to carry about three times the load of each open truck. To perform the rubbish-collection work, the city uses a 3-man crew, consisting of a driver and two loaders. These crews can collect an average of four loads per day. The day starts at 5:00 a.m. and ends at 1:30 p.m. No refuse is left uncovered at the end of any day. Garbage is disposed of separately on contract for distribution to stock ranches. Garbage crews make two collections per week and use four 1½-ton trucks.

One outstanding and immediate advantage derived from this advance in municipal-service technique is the tremendous reduction of burning in individual resident's incinerators, thus materially contributing to a very practical application of "smog" control.

Jacksonville Sanitation Wins High Praise

IF THE municipal sanitation field were to present an "Oscar" for the best film in the field, the city of Jacksonville, Fla., would win hands down.

The street-cleaning and refuse-collection services are the subject; N. M. Ulsch, of the Department of Health and Sanitation, is the film's director, and a Jacksonville youngster who learns how he can cooperate to make his city cleaner is the star.

The film has a charmingly informal style designed to make the public want to help keep the city clean. It shows the city's equipment at work, introduces the personnel who do the work, and shows the great benefits of good sanitation practice.

The film, in addition to being shown in schools and public gatherings, was presented before the American Public Works Association's annual meeting in New York City last fall; it also has been shown at Fort Worth, Baltimore, several Florida cities, Detroit, and before classes at Stevens Institute of Technology, Hoboken, N. J.

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Sewerage and Sewage Treatment

Material Costs Half of Sanitation Improvements

WHEN you build a water improvement, the costs will divide as follows on an average:

Labor	31.5%
Overhead, profit, and equipment	17.1%
Supplies	1.9%
Materials	49.5%

If the treatment plant alone is involved, the cost distribution averages 30.1% for labor, 17.6% for overhead items, 1.9% for supplies, and 50.4% for materials. If distribution alone is involved, the labor figure averages 31.7%; overhead, 17.0%; supplies, 1.9%, and materials 49.3%.

When you build a sewerage improvement, the costs will average about on the same lines:

Labor	31.7%
Overhead, profit, and equipment	24.1%
Supplies	1.7%
Materials	42.5%

The treatment plant alone would average 28.0% for labor, 17.3% for overhead, 1.2% for supplies, and 53.5% for materials. The sewer-collection system would average 33.5% for labor, 27.3% for overhead, 2.0% for supplies, and 37.2% for materials.

These figures were compiled by the United States Department of Labor's Bureau of Labor Statistics.

Supreme Court Upholds Ohio River Compact

THE pollution-abatement campaign of the Ohio River Valley Water Sanitation Commission weathered a troublesome legal storm when the United States Supreme Court, in a unanimous decision, ruled that West Virginia continues as a member of the eight-state compact body. This reverses the action of the Supreme Court of Appeals of West Virginia in declaring that that state's participation in the eight-state compact was unconstitutional.

Justice Felix Frankfurter, who delivered the ruling, said that "a state (West Virginia) cannot be its ultimate judge in a controversy with a sister state." The Compact, he continued, "involves a reasonable and carefully limited delegation of power to an interstate agent. The Compact evidently was drawn with great care to meet the problem of debt limitation."

The Justice added that "adjudication here of conflicting state interests affecting stream pollution does not rest upon the law of a particular state. A compact after all is a legal document."

Justice Robert Jackson in a concurring opinion wrote: "whatever interpretation [West Virginia] may put on the generalities of her constitution, she is bound by this Compact." West Virginia, he said, "points to no provision of her constitution which we can say was clear notice or fair warning to Congress or other states of any defect in her authority to enter this Compact."

The difficulty arose when the West Virginia Supreme Court on April 4, 1950, upheld State Auditor Edgar B. Sims, who refused to approve a payment of $12,500 to the River Commission. This amount is West Virginia's annual contribution for support of the interstate agency.

The majority opinion of the West Virginia Court interpreted the Compact as: (1) Requiring the state to incur a financial obligation in violation of the debt limitations imposed by the West Virginia constitution; and (2) resulting in a delegation of police power that is contrary to the general principles of constitutional law.

High Degree of Purification Needed

GARDNER, Mass., recently installed a single-stage Dorr biofiltration system to replace plain sedimentation basins and intermittent sand filters. In the redesign of the plant, four plain sedimentation tanks were used as the secondary in a Dorr Multdigestion system.

The entire present layout is designed for an average flow of 1.75 mgd. At Gardner, a high degree of treatment is necessary to prevent pollution of the near-by Otter River. The plant was designed by Whitman and Howard, consulting engineers, of Boston, Mass.

Five 42-Inch Pumps in Oakland Sewage Plant

FIVE 42-inch mixed-flow pumps are installed in the new sewage-treatment plant at Oakland, Calif. Three are driven by constant-speed, 500-hp, 4,000-volt synchronous motors. Two are driven by two-speed synchronous motors rated at 500 hp at 400 rpm, or 350 hp at 360 rpm. Each pump was specified to be able to move 42,000 gpm at 35-foot total dynamic head, or 38,500 gpm at 29.4-foot head. Performance tests by Morris Machine Works, Baldwinsville, N. Y., manufacturer of the pumps, showed guarantee exceeded by delivering 46,000 gpm at 35-foot head and 41,000 gpm at 29.4-foot head.

Oakland's five mixed flow pumps. Note the rigid fabricated-steel motor supports, which give added strength to the equipment.

For **AIR RAID WARNINGS**

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A PUBLIC ALARM OPERATED BY COMPRESSED AIR

Characterized by:

Great Sound Producing Power —Audible Range and Sound Penetration

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Effective Coding of Signals

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Operability under all conditions

Modern warfare is not confined to fields of battle—entire populations are involved . . . Instructions must be given to the civil defense forces . . . Warnings to the populace of impending air raids must be given swiftly and effectively if lives are to be saved . . . In such emergencies coded signals given by sound with centralized control and by skilled operators provide the swiftest and most dependable means of disseminating intelligence throughout a municipal area.

The GAMEWELL DIAPHONE, pre-eminent for 40 years as a public alarm, is ideally adapted for sounding Air Raid Warning signals. Existing municipal wires may be utilized for air raid alarm without impairment of their normal service.

Requests for information from authorized Civil Defense officials are welcomed.

The GAMEWELL COMPANY

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Public Safety

Two-Way Radio In Community Disasters

A constructive influence in the civil-defense activities is the practically unquestioned acceptance of two-way radio for the municipal and quasi-official vehicles involved. Two-way radio for the fire service, for instance, has made a longer stride in the last year or two than in all the years during which the police department was equipping its cars with radio.

United States civil-defense authorities state that ". . . . local control centers . . . should be capable of . . . constant two-way communication with local police, fire, rescue, medical, engineering, and other operating services."

For several reasons, two-way radio is likely to be the only communication means in an emergency: (1) these services are mobile, (2) the wire service may be knocked out by attack, (3) during any emergency the public rushes to telephones, overloading the central equipment.

In the civil-defense picture the chief warden uses two-way radio after enemy attack to make reports of casualties and damages, call for emergency services, and assist mobile teams with his intimate knowledge of area. The police, through two-way radio, are directed to the disaster scene to prevent panic and looting, control pedestrian and vehicle traffic, issue passes, and check and report unexploded bombs.

The rescue squads are summoned by two-way radio to remove people from debris of demolished or damaged buildings. They use radio to call medical service.

The fire department is ordered, by two-way radio, to fight fires that are beyond local ability. Radio calls up fire services from outside disaster areas. Ambulances and doctors need two-way radio for directions.

Insuring Power for Radio

The electrical-power supply in a vehicle with two-way radio must perform multiple functions: power the radio transmitter and receiver, keep the battery charged for sure starting, supply current for lights, siren, and other accessories. Five years ago, THE AMERICAN CITY called attention not only to the increasing failure of the electric-power supply of municipal emergency vehicles, but to the solution to this problem as well. In articles in the November 1946 and the May 1947 issues, Chief of Police Edward Kirk, of Weehawken, N. J., and Inspector Francis A. Burns, of New York City, told how the installation of alternating-current generators solved the problem of power supply and permitted operation of the radio with the car motor turned off over long periods. The Leece-Neville alternator system consists of a fan alternator, a rectifier which changes the current from alternating to direct, and a regulator, which accurately controls the voltage. The system produces 25 and 35 amperes with engine idling. Thus, any defense-service vehicles can be parked with engine idling and radio operating, without danger of running down the battery.

In the public interest, the Leece-Neville Company has published *A Guide to Mobile Communications for Civil Defense.* This booklet gives up-to-date information on how two-way mobile radio helps to coordinate all operating services into an efficient team. The guide can be obtained free by civil-defense and government officials or others concerned by addressing the Leece-Neville Company, Cleveland 14, Ohio.

$20 a Year Records All Fire Alarms

Headquarters control room, with the tape recorder in the left foreground. Left to right are Lt. Thomas Bolger at the automatic alarms control panel; Thomas Pettit at the teletype machine, and John Speers at the telephone switchboard.

A RECORD-KEEPING system for emergency fire calls—an automatic, foolproof system that costs less than $20 a year—has been set up by the Fire Department of New Haven, Conn. It records all incoming emergency fire calls—protecting both the city and the Fire Department against complaints that occur when a telephone caller gives the wrong address for a fire.

In such cases, the irate caller usually wants to know, "What took the Fire Department so long? I called them myself!" Now he can get an answer: a complete tape recording of his telephone conversation with the Fire Department. That ends the complaint; a man can't argue after hearing his own voice give the wrong address for a fire.

The tape recording equipment was installed in July 1949 at a cost of less than $500. Since then we've had virtually no maintenance expense.

Operation is automatic. Power is "on" at all times, and the recorder is set to start and stop automatically when a phone plug is engaged and disengaged in the switchboard.

In addition, the recorder enables all personnel in the headquarters control room to hear the call as it is being received. While the call is being recorded, it is also being amplified throughout the control room. The equipment is also set up to log radio calls now logged by hand.

Equipment involved is a table-top-size recorder, which both records and plays back. Made by Magnecord, Inc., 300 W. 63rd Street, Chicago, Ill., it operates at 7½ inches of tape per second, making a single-track recording on 1,200-foot (half-hour) reels of sound-recording tape.

PAUL P. HEINZ
Fire Chief
New Haven, Conn.

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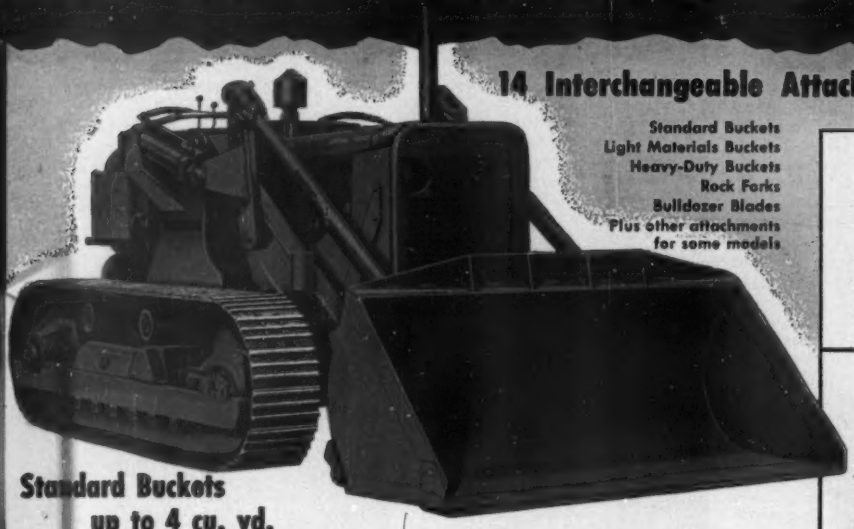

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These new Tractomotive shovels on the larger size Allis-Chalmers tractors now bring you the same wide utility, the same outstanding performing ability as the popular HD-5G — the Tracto-Shovel that revolutionized excavating and material handling.

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The new Allis-Chalmers tractors are not just refinements of existing models . . . *they are new from the ground up* . . . without compromise anywhere in design or materials. Back of their design are your own ideas and those of your operators and mechanics. These are combined with the vast experience of Allis-Chalmers to set new standards of Performance, Durability, Simplified Servicing, Ease of Operation.

1-Yd. HD-5G
Drawbar hp.: 40.26
Dumping Height*: 9 ft. ¼ in.
Total Weight: 16,200 lb.

2-Yd. HD-9G
Drawbar hp.: 70
Dumping Height*: 11 ft. 4½ in.
Total Weight: 29,800 lb.

3-Yd. HD-15G
Drawbar hp.: 102
Dumping Height*: 12 ft. 8 in.
Total Weight: 40,000 lb.

4-Yd. HD-20G
Hydraulic Torque Converter Drive — 175 net engine hp.
Dumping Height*: 13 ft. 5 in.
Total Weight: 61,600 lb.

**Height of bucket hinge*

ALLIS-CHALMERS
TRACTOR DIVISION . . . MILWAUKEE 1 U.S.A.
Originator of the Torque Converter Tractor

Columbus, Nebr., Makes Use of Its Street-Paving Lessons

By BRUCE L. GILMORE
City Engineer
Columbus, Nebr.

STREET PAVING in Columbus, Nebr., has had all the elements to it that make for a good engineering problem. The city lies entirely in the valley of the Platte River, and thus the soil is varied and pocketed with sand, fine silt, and clay. The silt pockets and high-water table combine to give a market "frost heave" action to sections of the roadway. The average slope of the city streets is about 4 inches to a 300-foot block, making removal of surface water slow in the areas not served by storm sewers. Moreover, the tax structure is such that we could not undertake an extensive street-improvement program and pay for it out of general-fund taxes.

Early Pavement Successful

Our first important attack on this problem took place immediately following World War I. When we paved our business district we realized that we would need a strong pavement, able to stand up under the unreliable subgrade. In those days, we knew less about soil mechanics than we know today, so the first paving consisted of 7 inches of concrete underlying a 2-inch wearing surface of asphaltic concrete. Later, a city route of U. S. 30 was paved through part of the city with an 8-inch unreinforced slab. Both of these early pavements wore well and successfuly resisted frost action and heavy traffic.

We had no residential paving until 1940, chiefly because under Nebraska statutes, the abutting property owners must pay the total cost of the improvement, and the paving that we were able to use was too expensive for the value of the property. However, in 1940, under the WPA program, we were able to lay about five miles of 5-inch unreinforced thickened-edge slab and a mile of 4-inch asphaltic-concrete paving laid down in two coats over a somewhat stabilized base. The concrete slab stood up very well under traffic and the prevailing poor drainage in those areas where the soil still had bearing power even though saturated with water. However, in the silty areas, this paving cracked quite excessively. The asphalt streets were scarified and graveled after only three winters, since frost boils were breaking it to pieces.

We had no more residential street paving until after World War II, whereupon we put to work those lessons that we had learned over the years in order to make this pavement give the utmost in dollar value.

After much deliberation, we decided that the best solution would be a slab with a uniform depth of 6 inches. This, we decided, had the structural strength necessary to carry the traffic load. We next decided that it should have a 6-inch granular sub-base. This should give a free-draining foundation to meet our troublesome soil conditions. The slab was unreinforced. Reinforcing in pavements is generally applied by rule-of-thumb, and our unreinforced slabs have stood up well in the past where they have had an opportunity to work on a sub-base of adequate strength. Air-entraining cement was specified for the pavement, thus providing us with the tougher, more weather-resistant surface, able to resist possible scaling because of salt or calcium chlorine application in connection with our snow-removal activity. We used one expansion joint per block. Present knowledge of paving action definitely shows that concrete can absorb temperature stresses, and fails by "blow-ups" when sand and dirt get into expansion and contraction joints and aggravate these temperature stresses by allowing them to build up to figures higher than normal.

We placed contraction joints at 15-foot intervals. This seems to be the natural interval into which the concrete divides. And with this interval, the contraction opening will not be so large; thus, not as much dirt can work its way into them, and we will have an easier job of keeping them sealed. Also, the fractured faces of the contraction joints will "key together" to allow the slabs to work as a sort of pin-connected joint without the need or the expense of dowel bars. The paving is 32 feet wide, from face of curbs, has a contraction joint 7 feet from the face of the curb, and a keyed joint in the center of the slab.

No Excavation Bid Item

One feature of the contract should be mentioned. There was no bid item for excavation, since it was uniformly 6 inches in depth. For this reason, all excavation was included in the paving-bid item.

After two winters of service, neither heavy traffic nor frost action have produced any visible failures. And we are confident that the reasonable future of the pavement will show equally good results.

The concrete is delivered to the grade by 3-yard Koehring Dumperete ready-mix bodies on Ford truck chassis. An Electric Tamper and Equipment Company vibrating screed brings the concrete to the proper elevation. Note the absence of reinforcing in the slab except for dowel bars in the center.

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Asphalt Plants

600 The Standard Steel Corp., 5085 Boyle Ave., Los Angeles 58, Calif., on request will send a descriptive catalog of its asphalt plants available in 8 sizes—500 to 6,000-pound batch capacities.

For Better Lubrication Of Locks and Machines

601 For locks and for use wherever moving parts might gum up if lubricating oil were applied, there is a widely used powder lubricant called Grafize. Many municipalities are blowing it into the locks of their parking meters to keep them from sticking. For information and a list of cities using Grafize, write to Reardon Products, 2109 S. Adams St., Peoria 2, Ill.

Official Badges

602 Standard badges for police, fire, and other city, county and state officials are manufactured by the C. G. Braxmer Co., Inc., 216 E. 45th St., New York 17, N. Y. Rolled-gold badges have hard baked blue enameled letters and safety catches. They are also made in sterling silver and sterling silver gold plate, and have black enameled letters. Any badge can be made in solid gold.

Modern City Codes

603 The Michie City Publications, Co., Charlottesville, Va., codifies, edits, and indexes city ordinances and brings them up to date. It reports that without obligation its editors "will visit your city to check your ordinances and then submit a concrete proposal for preparing your new city code." Write for full details.

If You Want Batteries To Last Longer

604 The City of Oakland, Calif., Electrical Department, says they have found that if a new battery is treated with Battery AD-X2, and given an equalizing charge prior to installation, they estimate conservatively that the life expectancy will be extended 2½ times the normal life before failure. This is after 3 years of experience in the use of the product in radio police vehicles subjected to hard usage, and is important in these times of shortages of lead, acid, and rubber. For information about this battery saving product, write Pioneers,, Inc., 2411 Grove Street, Oakland, Calif.

Concrete Lighting Standards

605 The model Design 660 Hy-Lite standard for street lighting features the new higher upsweep bracket which makes a shorter pole height possible. The pole is furnished with its own pre-cast butt foundation, and provision for overhead wiring makes additional savings. Complete information and dimensional data on centrifugally spun-granite lighting standards will be supplied by the American Concrete Corp., 4727 N. Lamon Ave., Chicago, Ill.

Carrying Capacity Of Transit Vehicles

606 Larger cities are increasingly interested in rapid transit as a substitute for excessive construction of traffic highways. For information on the carrying capacity of modern lightweight P.C.C. rapid-transit cars, like the 200 being installed in Chicago, write the St. Louis Car Co., St. Louis, Mo.

Curb, Corporation Stops

607 The Mansfield Water Works Brass Co., Division of Mansfield Brass and Aluminum Corp., 287 N. Diamond St., Mansfield, Ohio, has prepared a folder on its Micro-Seal curb and corporation stops, and hydrant cocks. According to the manufacturer, Mansfield Micro-Seal surfaces are so skillfully formed on high-precision, hydromatic machines that an absolutely true, smooth fit of bore and plug is obtained. The stops are tested to resist pressures far beyond the safety factor of any city line.

Air Release Valves That Improve Pumping Equipment's Operation

608 Air, gas or vapor in water or other free-flowing liquids can slow or stop the flow and reduce the capacity in pumps or storage as well as inaccurate measuring. Elimination is easily attained by air and vapor release valves. Apco heavy-duty valves are available in size and shape for every condition. For instance, the No. 140 is designed to release the air in the discharge lines of deep-well pumps. For complete details on venting capacities and typical applications, write for "information on air and release valves as described in The Municipal Index 1951." Address Valve and Primer Corp., 356 W. Huron St., Chicago 10, Ill.

Sand Spreaders

609 Baughman sand spreaders have patented pre-heaters in the bottom of their bodies to keep material flowing freely and prevent breakage of moving parts in extremely cold weather. Safety baffle plates give absolute spread control and push-button control from cab of truck allows spot spreading wherever desired, if driven by an auxiliary engine. Full details will be furnished by the Baughman Mfg. Co., Inc., 651 Shipman Road, Jerseyville, Ill.

Towing Winches

610 The Hyster Co. of Portland 8, Ore., and Peoria 1, Ill., on request will send literature about its towing winches and 30 other tractor tools for Caterpillar-built tractors.

Air-Raid Sirens

611 Foster sirens are non-directional and produce 125 to 130 decibels at 100 feet—high enough to overcome a street or shop level of 70 to 80 decibels. They require a steam supply of less than 1,500 pounds per hour at 75 pounds pressure available in most utilities and industrial processing plants. Bulletin 29 describing the product is available from the Foster Engineering Co., 835 Lehigh Ave., Union, N. J.

Valves to Solve Water-Hammer Troubles

612 Williams-Hager flanged silent check valves solve water-hammer troubles which arise in plants. The Williams Gauge Co., 3013 Pennsylvania Ave., Pittsburgh 33, Pa., on request will send Bulletin WH-100 which discusses its product available for every service in standard-pipe sizes from 1 to 20 inches. These compact valves can be placed in your water system in any position.

Floating Digester Covers

613 P.F.T. floating digester covers for sewage-treatment plants serving populations ranging from 500 to 5,000,000, are made by the Pacific Flush Tank Co., 4241 Ravenswood Ave., Chicago 13, Ill. The equipment provides complete submergence of buoyant sewage solids, more effective and safe collection of sewage sludge gas, and more complete digestion.

Electrical Unit

614 The Leece-Neville alternator system is an electrical unit that contains fully charged batteries, and surplus amperage under absolute control at all speeds. The L-N voltage regulator has sensitive controls that assures dependable and sufficient electrical output for every type of service. For further information, write to The Leece-Neville, Co., Cleveland 14, Ohio.

New Water Filter Underdrain System

615 A "Multiplate" underdrain system has been developed by the General Filter Co., Ames, Iowa, designed to be used either in pressure or gravity filter beds. The system uses a specially designed, non-clogging orifice that eliminates tuberculation. The system has a low head-loss, and provides even water distribution for the backwash operation. To get full information, ask for Bulletin 5128.

Large-Capacity Water Meters

616 The Sparling Meter Co., Inc., Box 3277, Los Angeles 54, Calif., has prepared Bulletin 311 which describes its water-measuring equipment. Among the styles discussed are main-line meters, saddle type, salt water, high pressure, and fire hydrant meters. The company states that its meters are easy to install, are consistently accurate, and have negligible pressure drop.

(Please Turn to Page 23 for More Literature)

LITTLE ROCK BERKELEY ATLANTA LONG BEACH LOS ANGELES
DECATUR SAN BERNARDINO SAN FRANCISCO BOSTON DETROIT
SOMMERVILLE OMAHA GREAT BEND FLINT AC PORTLAND
JERSEY CITY AST RHINELANDER
CORNINGA ER, HAWTHORNE
TORONTO(ONG BRANCH
BANNING S ON LAKEWORTH
ENGLEWOOD ALBERT LEA
CHEHALIS RT AUBURN
BAY CITY LYONS
TORRANCE SALINAS
ATHENS SA ARCADIA
IDAHO FALLS PONTIAC MAPLEWOOD
TERRE HAUTE A FORIA NEW YORK CITY LUBBOCK PORT ARTHUR
CENTRALIA FLINT CASPER YAKIMA VANCOUVER, B.C. CAN.

OVER 200 CITIES COAST TO COAST!

MORE AND MORE CITIES across the nation are reporting important savings on street sanitation costs with the WAYNE Model 450 Pick-Up Sweeper... savings on *equipment*, on *manpower*, on *operating costs!*

These same savings can be yours—regardless of the street sweeping method you are now using. Only WAYNE gives you the speed and the effective hopper capacity to make low cost central dumping practical...only WAYNE can sweep and haul away to disposal over 3 cubic yards of dirt—at traffic speeds.

The full story on the WAYNE Model 450 Sweeper is yours for the asking. Find out—today—why large and small cities alike are picking WAYNE as the one economical solution to street sanitation problems! Write.

Wayne Model 450
Pick-Up Sweeper

WAYNE
PICK-UP
SWEEPERS

WRITE FOR THIS BULLETIN—It illustrates and describes such outstanding Model 450 features as—practically indestructible non-clogging dirt elevator...largest effective hopper capacity of any sweeper...low body design for full forward vision...forward 42" gutter broom...hydraulic controls...full floating broom suspension...and a dozen other features you should know.

Sold and serviced throughout the United States by a fine distributor organization.

WAYNE MANUFACTURING COMPANY
MANUFACTURERS OF STREET SWEEPERS
1201 East Lexington Street, Pomona, California

Which Catalogs Interest You?

Write directly to the manufacturers, or use the coupon on page 21

City Tax Equalization

617 On request, the J. M. Cleminshaw Co., Union Commerce Bldg., Cleveland, Ohio, will send its illustrated brochure describing its public appraisal service. The company's employees are specialists in the revaluation of real estate, personal property, and public utilities for local tax equalization purposes.

Motor Grader Does Many Jobs

618 The Model D motor grader does many jobs at a new low cost. Manufactured by Allis-Chalmers, Tractor Division, Milwaukee 1, Wis., this machine weighs 8,500 pounds, has a 34.7 brake hp and four forward speeds to 18.6 mph, and reverse to 2.9. It maintains roads and streets, slopes banks, cuts ditches, loads sand, gravel and snow, works and spreads oil mix.

Portable Rock Drills And Paving Breakers

619 Portable rock drills and paving breakers are manufactured by Wanson Power Tools, Inc., P. O. Box 1809, Wilmington 99, Del. The firm will show that its equipment can do more work, save time as well as money. The drills and breakers are used for pavement breaking, tamping, sheathing driving, rock and concrete drilling. Write for descriptive literature.

Police Motorcycles

620 Harley-Davidson motorcycles are built especially for police work. Their easy handling, quick pickup, road-hugging stability, riding ease, and effortless steering help the mounted officer do his duty more effectively. Complete information on the use of its product for traffic control may be obtained by writing to Harley-Davideon Motor Co., Milwaukee 1, Wis.

Breathing Equipment For Fire Fighters

621 Breathing equipment for fire fighters is manufactured by the Safety Equipment Division, Scott Aviation Corp., 191 Erie St., Lancaster, N. Y. The Scott Air-Pak safely protects firemen from all toxic fumes, provides ample supply of cool fresh air, and protects lungs and eyes so that work can be accomplished efficiently and comfortably. The firm reports it will give a free demonstration of the new Scott demand oxygen inhalator.

Fountain Brushes

622 KC fountain brushes made of nylon and finest horsetail mixture bristles scrub, wash, and rinse in one operation. They are used for cleaning cars, buses, trucks, and trailers. Made in eight models to meet every need, the brushes are of all-aluminum handmade construction and fit any standard size garden hose. Literature will be sent by K. C. Fountain Brush Co., 3718 Main St., Kansas City, Mo.

Sealed-In Protection for Insulated Piping Systems

623 Ric-wil. Prefabricated insulated piping systems give maximum sealed-in protection and efficiency, underground or overhead, whether your system carries steam, hot water, oil, or process liquids. Further information on its equipment will be furnished by The Ric-wil. Co., Cleveland 14, Ohio.

Floodlight Projector

624 The Tilley floodlight projector burns kerosene and gives a light of 5,000 mean reflected candle power. A self-contained unit without cables or other constructions, the device is wind and rain proof. It is used by contractors, fire departments or railways in emergencies or accidents. Model F.L. 6, mounted on 8-foot tripod with turntable top allowing a full 360 degrees traverse is $85 each, net, f.o.b. Chicago. Full details will be supplied by the distributor, William W. Lee & Son, 20 E. Jackson Blvd., Chicago 4, Ill.

Aerial Survey

625 *Aerial Surveys and Maps from Photographs* is the title of a guide to air-mapping issued by Abrams Aerial Corp., Lansing 1, Mich. The firm, by photogrammetric means, compiles contour and planemetric maps, plan and profile and Atlas sheets, and other specialized maps to fit specific needs of federal, state, municipal, and commercial projects.

Water-Meter Disc Reclamation

626 The B. James Robertson Co., 1726 Beverly Drive, Pasadena 7, Calif., reports issuance of its latest catalog of waterworks specialties and water-meter replacement parts and tools. Included in this publication for the first time is the Disc Reclaiming Process which saves material, time, and money. The company reports that every water-meter shop can use this process of water-meter disc reclamation. Among the firm's products are the Holselaw handy pipe and tube bender, internal pipe wrench, Curtis water meter vise, and Pathfinder pipe locator.

Turf-Aerating Machines

627 Turf-aerating machines for home lawns, institutions, airports, golf courses, and parks, are manufactured by Soilaire Industries, 1200 Second Ave., South, Minneapolis 3, Minn. The free-wheeling Tractoraire follows any contour, and allows complete freedom in spacing for pastures or row crops. Its wheels provide differential action. The new self-propelled Motoraire is handled like a power lawn mower. Write for descriptive booklet.

Maintains Lists Of Registered Voters

628 The Flexoprint system for voters' registration is fast, less expensive and more accurate than other methods, according to Remington Rand, Inc: Typewritten die-cut cards are filed alphabetically or by street and number on district or precinct panels. For illustrated folder, KD-499, write to the company's Management Controls Reference Library, Room 1119, 315 Fourth Ave., New York 10, N. Y.

Large Containers Aid Rubbish Collection

629 Municipalities can cut the cost of rubbish collection by using the Dempster-Dumpster system, consisting of one or more truck-mounted Dempster-Dumpsters, each with only one man, the driver, servicing any required number of Dempster-Dumpster containers ranging in size up to 12 cubic yards. This method triples man-hour efficiency, reduces truck investment, gas, oil, maintenance costs, improves "housekeeping" methods, reduces fire hazards, and provides an easier, quicker, safer and more effective manner of handling bulk trash and refuse. Further information will be supplied by Dempster Brothers, 851 Dempster Bldg., Knoxville 17, Tenn.

Elevated Water Tanks

630 A free 24-page brochure is issued by Pittsburgh-Des Moines Steel Co., Pittsburgh 25, Pa., describing elevated steel tank design and construction. The company reports that it will advise on elevated storage-tank needs.

Lighting for Parks And Municipal Areas

631 A complete line of floodlights for parks, municipal areas, and recreation fields is issued by the Stober Mfg. Co., Roosevelt Road, Broadview, Ill. Write for a copy of Bulletin 127-50 and list price sheet. The firm's Sportsliter, Series 4,000, is available in 750, 1,000 and 1,500 watts and can be used for floodlighting baseball and football fields, as well as for protecting industrial plants and railroad yards. Economy-type aluminum open floodlights from 300 to 1,500 watts, are designed for all-purpose sports lighting.

Trolley Coach Experience In Specific Cities

632 During the last dozen years the number of street cars dropped by half while motor buses doubled and trolley coaches tripled. These trackless trolleys are now operated by 42 transit companies and departments. City by city, the Ohio Brass Co., Mansfield, Ohio, has outlined the public approval of trolley coaches. The most recent story is that of Cleveland, Ohio. Write for a copy.

Weather Forecasts

633 Not only in snow removal, but in other fields of municipal activities it pays to have advance information on the weather that is more detailed than the Weather Bureau furnishes. Weathercasts of America, 611 Olive St., St. Louis, Mo., supplies this service and will send a free booklet describing it.

Tar-Enameled Water Pipe

634 Bethlehem tar-enameled water pipe for water-supply lines has high strength, resistance to corrosion, long service life, freedom from leakage, and is economical to install and operate. Made in 40-foot lengths, the pipe comes in all diameters from 22 inches up to the largest permitted size. Further information will be supplied by the Bethlehem Steel Co., Bethlehem, Pa.

Rubber Gaskets

635 Engineering specifications for use of Hex-seal rubber gaskets with reinforced concrete sewer pipe are contained in a new brochure published by Universal Concrete Pipe Co., 297 S. High St., Columbus, Ohio. The text and drawings cover such subjects as type of pipe, dimensions, pipe design, steel reinforcement, concrete, water and steam curing, curing compounds and curves.

New Recording Meter Bulletin

636 A new 28-page bulletin of its recently announced line of Series 500 recording voltmeters and ammeters has been published by The Bristol Co., 131 Bristol Rd., Waterbury 20, Conn. The publication describes the features of the instruments, with special emphasis on the newly developed moving-iron measuring mechanism. Complete information is given on ranges, uses, and specifications of the various models for permanent installation and portable use.

Oil Burner Products

637 The Ray Oil Burner Co., 401-499 Bernal Ave., San Francisco 12, Calif., has prepared a new condensed, 16-page catalog in color. It gives a complete listing of the firm's oil-burner products, among which are fully automatic horizontal rotary type, steam turbine-driven type, combination gas-oil, semi-automatic, and pressure atomizing type. The booklet has a selector chart and describes operation and control of each unit.

Fabrics for Smart Municipal Uniforms

638 What's the difference between Army twill, Parade twill, Glengarrie poplin? For a description of these and other quality cotton fabrics, write to Reeves Brothers, Inc., 54 Worth St., New York 13, N. Y. The firm is a specialist in smart uniform material for municipal employees.

Parking Meters

639 Miller manual and Automaton automatic parking meters are used by cities throughout the country because of low maintenance, continuous on-the-job performance, top earnings, and public acceptance, reports the manufacturer, the Duncan Parking Meter Corp., 835 N. Wood St., Chicago 22, Ill. Write for further information about this equipment.

(See Page 24 for more Bulletins)

Obtain this Literature Free of Charge!

Write directly to the manufacturers, or use the coupon on page 21

For Deep-Well Turbine Pumps

640 The new U. S. Verticlosed Motor gives new economies, better performance and longer life to deep-well turbine pump operation. Descriptive bulletins may be secured from U. S. Electrical Motors, Inc., Los Angeles 54, Calif.

For Economy, Use This Pressure Pipe

641 Transite pressure pipe means economy for the costs of water-line construction. Manufactured by Johns-Manville, this product speeds and facilitates water-main installations. It is light, simple to load and handle, provides more footage per truck, and the flexibility of its joints permits it to be laid around wide curves without need for special fittings. The Simplex couplings require no caulking or hot compounds. For further information, write to Johns-Manville, Box 290, New York 16, N. Y., asking for Brochure TR-11A.

Saws Concrete or Asphalt

642 The Concut concrete saw is a self-propelled machine that saws concrete or asphalt faster and at less cost, according to Concrete Sawing Equipment, Inc., 200 Union National Bank Bldg., Pasadena 1, Calif. Bulletin 12 describes the product which has finger-tip control and a lever lock that quickly raises and lowers blade.

Maintenance and Care Of Clamshell Buckets

643 A new bulletin containing practical information on the maintenance and care of clamshell buckets has been published by the Blaw-Knox Division of Blaw-Knox Co., 2009 Farmers Bank Bldg., Pittsburgh 22, Pa. Listed are suggestions on the proper use of the equipment. Bulletin No. 2373 also gives illustrated instructions on straightening distorted lips, repairing fractures, hard-surfacing cutting edges, and rebuilding worn cutting edges. The clamshell buckets are used in certain incinerators and on city-owned power shovels.

Municipal Motor Truck

644 The White 3000 has a 14-foot dump body with hydraulic hoist. According to The White Motor Co., Cleveland 1, Ohio, it is ideal for municipal service. It has outstanding maneuverability, saves loading time, and has extra-carrying capacity.

Solution to Sludge Disposal Problems

645 The C-E Raymond flash drying and incineration systems have helped to solve the problem of industrial sludges. They are flexible in layout, and provide for maximum utilization of waste heat. Complete information on the equipment will be sent by Combustion Engineering-Superheaters, Inc., Flash Dryer Division, 1315 N. Branch St., Chicago 22, Ill.

Lifetime Street Signs

646 Lake Shore Markers of lifetime aluminum are rustproof, durable, and attractive. They are manufactured for day and night visibility. An illustrated catalog will be supplied by the Lake Shore Markers Division, Lake Shore Pattern Works, 654 W. 19th St., Erie, Pa.

Newly Designed Fire Hydrant

647 If you're looking into fire hydrants, be sure and direct attention to the new Mathews design made by the R. D. Wood Co., Public Ledger Building, Independence Square, Philadelphia 5, Pa. All working parts are contained in a quickly replaceable barrel. The stuffing box is integral with the nozzle section and positively leakproof. The hydrant has a replaceable head and the nozzle sections are easily changed. For descriptive literature, write to the company.

Asphalt Plants

648 The White Mfg. Co., of Elkhart, Ind., on request will send a catalog describing its asphalt plants. These complete stationary hot plants, on 1 steel frame, are easily moveable. They are supplied with an oil-fired rotary dryer, batch mixer, bitumen heater, vibrating screen, divided hot bin, dust collector, volumetric measure or weight scales, air controls, and with engine or electric power.

Dust-Control Medium

649 A copy of a new brochure on Gulf Sani-Soil-Set, a dust-control medium, will be sent by the Gulf Oil Corp., Gulf Bldg., Pittsburgh 30, Pa. This liquid material anchors dust by adhering to and weighing down dust particles. It is used in municipalities, schools, amusement parks, and drive-in theaters, and controls dust, leaving a fresh, clean surface, uniform in appearance and free from glare.

How to Use Soda Ash For Water Conditioning

650 Solvay liquid chlorine soda ash for water conditioning is discussed in technical bulletins issued by the Solvay Sales Division, Allied Chemical & Dye Corp., 40 Rector St., New York 6, N. Y. Bulletin No. 5 describes *Soda Ash;* No. 7, *Liquid Chlorine;* 8, *Alkalies and Chlorine in the Treatment of Municipal and Industrial Water,* and No. 11, *Water Analysis.* Write for your free copies.

Trees Removed by Rocking Principle

651 A new method of removing trees has been developed by Williams & Harvey Nurseries, Box 7068, Country Club Station, Kansas City 2, Mo. The company reports that the Rocker principle is speedier than any other method and permits easy, well-balanced lifting of trees up to 10 or 12 inches in diameter, up to 5 tons in weight. Sturdy built-in jacks support rear of truck, and the power winch does the loading. The machine is available in two sizes, the larger for up to 5-ton loads, and the smaller, up to 3-ton capacity.

Sluice Gates For Waterworks

652 Sluice gates for waterworks are manufactured by The Filer & Stowell Co., 147 E. Becher St., Milwaukee 7, Wis. They are available for every kind of service and in a wide range of types and sizes. The firm has amply proportioned and standardized its sluice gates to meet all normal conditions, but its engineering department will make recommendations on special installations. Among the subjects discussed in the new Bulletin 752 are area of sluice-gate openings, installations, floorstands, and operating mechanisms.

For Pipe Installations

653 The freezing elements of winter will not deter your pipe installations when you use the tool produced by the Giant Mfg. Co., Council Bluffs, Iowa. This small, inexpensive device pushes pipe up to 15 inches diameter through the ground, under the frost line at the rate of 1 to 5 feet per minute.

This Leaf Rake Enriches the Soil

654 A power vacuum leaf rake that enriches the soil is the Power-Vac-Raklean, a product of the Speedy-Sodak Mfg. Co., 4th and Fairfax, Sioux Falls, S. D. In one operation it rakes, vacuums, and fertilizes. A circular on this device will be supplied by the manufacturer.

Pipe-Cleaning Tools

655 Pipe-cleaning tools and equipment are produced by the Flexible Underground Pipe Cleaning Co., and Flexible Sewer-Rod Equipment Co., 9059 Venice Boulevard, Los Angeles 34, Calif. Write the concern for full details.

Automatic Signals Prevent Accidents

656 Accidents at railroad crossings are prevented by the use of the Model 10 automatic signal manufactured by the Western Railroad Supply Co., 2428 S. Ashland Ave., Chicago 8, Ill. According to the company, this device is low in cost, installation, operation, and maintenance. Write for Bulletin AC6-748 which describes the equipment.

Controls Water Pumping Automatically

657 The Control Corp., 718 Central Ave., Minneapolis 14, Minn., on request will send literature describing its equipment for supervisory control and telemetering for centralized control of water pumping. The Super-Trol provides the remote control and indication for an ultimate of five main pumps, indications of two vacuum pumps, high water in the vacuum tank, main pump circuit breakers, vacuum-pump circuit breakers, a main circuit breaker, one-sump circuit breaker, and indications of overheated transformers.

Engineering Instruments

658 Catalog No. 50, published by W. and L. E. Gurley, Fulton and Station Sts., Troy, N. Y., discusses engineering and surveying instruments. Among the models shown are transits and levels for the civil engineer and surveyor; alidades and plane tables, as well as water-level recorders and current meters.

These Fire Trucks Cut Operating Costs

659 The new International fire truck cuts operating and maintenance costs. The International L-305 is equipped with a Hall-Scott 470 fire engine, automatic radiator shutters, and specialized transmission and axle. It carries complete fire-fighting equipment, including a 1,000-gpm main fire pump, 100-gpm auxiliary pump, 500-gallon water tank, ladders, and hose. The International Harvester Co., 180 N. Michigan Ave., Chicago, Ill., will send further information on request.

Vertical Sump Pumps

660 Aurora vertical sump pumps for heavy and light duty are available in non-clog sizes up to 8 inches. They give lasting, trouble-free, and efficient operation. The equipment is described in Bulletin 104 issued by the Aurora Pump Co., 66 Loucks St., Aurora, Ill.

Strong Pipe For City Streets

661 Cast-iron pipe is able to withstand external loads imposed by heavy fill and unusual traffic loads, and has beam, shock, and bursting strength. According to the Cast Iron Pipe Research Association, 122 S. Michigan Ave., Chicago 3, Ill., this product assures you of effective resistance to corrosion as well as long life and economy. Further information will be supplied by the Association.

Seals Concrete Joints

662 Flintseal is a rubber asphalt with positive joint-sealing material. Manufactured by The Flintkote Co., Industrial Products Division, 30 Rockefeller Plaza, New York 20, N. Y., this hot-poured compound for concrete joints assures excellent adhesion and durability. It is used for highways, streets, and airports.

Portable Coin Sorter

663 The Globe coin sorter sorts 1,000 coins a minute into individual boxes, ready to be counted and wrapped or bagged for bank deposits, or for future change requirements. Constructed of metal, the machine is 22 inches wide, 9 inches deep, 10 inches high, and weighs 30 pounds. The construction includes a 1/30-hp motor which operates on 110 volts current a.c. or d.c. extension cord with switch plug. Full details will be supplied by the Globe Distributing Co., 1623 N. California Ave., Chicago 47, Ill.

(Please Turn to Page 26 for More Literature)

Balance your street sweeping budget with MOBIL-SWEEPER

You can keep your community happy with cleaner streets . . . *at lower cost.* Every budget is getting a closer check nowadays. Make sure you stay within yours by using the faster, more efficient Mobil-Sweeper.

Ten years of Mobil-Sweeper development brings you unsurpassed sweeping action. On streets, gutters, alleys, highways, parks and airports . . . even steepest hills, you get top sweeping performance.

Cleaner Sweeping is accomplished through the longer draught arms that make the rear pickup broom "full-floating" in the true sense. Deepest dips get a clean sweep where ordinary sweepers would skip over or drop refuse.

Gutters Are Swept More Thoroughly because the special "decreased arc" type gutter broom segments retain their flipping action longer, giving hundreds of extra miles of clean sweeping.

More Pavement Can Be Swept without stops because Mobil-Sweeper's big 200-gallon water tank provides spray for more pavement with fewer refills.

And Don't Be Fooled On Dirt Hopper Capacity . . . be sure that your sweeper fills to its rated capacity every time under normal operating conditions. Mobil-Sweeper fills its 2⅔ cu. yd. hopper to the overflow every time – that's what counts.

Maintenance Is Less Costly because the International Harvester engine lends itself to your standard maintenance.

It's The Safest Sweeper Built—Mobil-Sweeper protects the driver with shatterproof windshield, steel cab and 4-wheel hydraulic brakes. The low overall height and steel cab permit passage under low-hanging trees.

Write for details on how your community can save on street sweeping costs today!

MOBIL-SWEEPER
DIVISION OF
THE CONVEYOR CO.
3260 E. SLAUSON AVENUE
LOS ANGELES 58, CALIF.

CONVEYCO

THE CONVEYOR COMPANY
3260 East Slauson Avenue, Los Angeles 58, Calif. AC-8

Gentlemen:
Please send catalog with complete details and specifications for the Mobil-Sweeper.

Name _____ Title _____

Address _____ City _____

County _____ State _____

From Break to Service in 11 minutes...

THE KENNEDY SAFETOP is the only hydrant with the threaded breaking ring that gives positive connection and rigid alignment of the two standpipe sections. Extensive tests and actual service reports show that the Kennedy *Safetop* can stand as tough a blow as the conventional hydrant without damage. But under a smashing impact, it always breaks cleanly at the breaking ring, without damage to working parts.

SHEARED OFF by a heavy road-scraper at 1:26, the Kennedy *Safetop* breaks evenly at the ground level.

Photos taken at N. Y. State Section meeting, A.W.W.A., April 1949.

WITH ONLY an inexpensive *Safetop* Repair Kit and a few common tools, one man can permanently repair the Kennedy *Safetop*.

NO NEED FOR DIGGING because breakage is all above ground . . . no flooding because compression-type valve closes with water pressure.

IN JUST 11 MINUTES the Kennedy *Safetop* is back in service . . . working as smoothly and efficiently as if nothing had happened.

THE COMPLETE KENNEDY LINE includes a wide range of A.W.W.A. valves and fire hydrants. When you standardize your community on KENNEDY, you are assured of the same high quality and dependability that have characterized all products of KENNEDY for 74 years.

WRITE FOR SAFETOP BULLETIN 105

THE **KENNEDY**

VALVE MFG. CO. • ELMIRA, N.Y.

Est. 1877

VALVES • PIPE FITTINGS • FIRE HYDRANTS

Catalogs for You

Write directly to the manufacturers, or use coupon on page 21

Protective Equipment For Atomic Energy Field

664 A convenient 8-page booklet describes equipment for air sampling, respiratory protection, resuscitation and contamination control in the field of atomic energy. The products range from a liquid soap and an air sampler to a new automatic artificial respiration instrument requiring no manual assistance. For a copy of *Approved Protective Equipment*, write Mine Safety Appliances Co., Pittsburgh 8, Pa.

Interchangeable Sluice Gates

665 Chapman standardized sluice gates have completely interchangeable stem and couplings to eliminate match-marking. All repairs and replacement parts can be easily installed in the field without alteration. The motor unit comes completely wired. Full details will be supplied by The Chapman Valve Mfg. Co., Indian Orchard, Mass.

Heater-Planer Salvages Bituminous Streets

666 Six modern and economical ways to improve and maintain old bituminous pavements with Heater Planer work are described in a bulletin published by the Universal Road Planer Corp., P. O. Box 72, 50 Oak St., St. Bernard, Cincinnati 17, Ohio. Discussed are new methods for cutting paving costs, producing smoother riding surface, and prolonging useful life of old bituminous surfaces by heater planing, resurfacing, deslicking, and surface treatment.

Mechanical-Joint Pipe

667 American Double-X pipe is regular Mono-Cast centrifugal pipe equipped with the standardized mechanical joint for cast iron pipe. Among its features are simplicity in installation, and long service with minimum maintenance. Manufactured by the American Cast Iron Pipe Co., Birmingham 2, Ala., the product is employed for systems conveying water, sewage, gas, oil, and other liquids under high, medium, or low pressures.

Psychoda Cure for Sewage-Treatment Plant

668 A free booklet on Chem-Larv for controlling psychoda flies is issued by the manufacturer, the Chemical Insecticide Corp., 57 13th St., Brooklyn 15, N. Y. When added to liquid sewage, this new type of compound forms a solution that penetrates into the zoogleal film killing the larvae and pupae in the film on the rocks. Chem-Larv is easy to apply, light in odor, and saves on labor costs and reduces application time. Write for your copy of this booklet which gives a history of the development of Chem-Larv and suggests formulas to help you use the solution in your plant.

Small Tractor Equipment

669 *Power* v. *Drudgery* is the title of a bulletin prepared by the Graveley Motor Plow and Cultivator Co., Box 373, Dunbar, W. Va. Among the Graveley equipment described, are the 5-hp Model L, a versatile small tractor with 17 different attachments for plowing snow, cultivating, mowing weeds, mowing lawns, hauling, plowing, rolling, and spraying.

Transport Trailer For Traffic Line Striper

670 The new Carry-Liner, a transport trailer for your traffic striper, is manufactured by Wald Industries, Inc., Montgomery, Pa. Bulletin 506 reports on the Model T2 which is designed to transport larger type portable striping machines. Also issued by the company is Bulletin 507 which describes the Reflecto-Liner Model 12 striper made for all modern marking materials and designed especially for reflecting coatings.

(See page 28 for more Bulletins)

Shopping for a Good Parking Meter?

Don't Overlook MI-CO

When you shop for parking meters, take a good look under the case. If the inside is filled with delicate, intricate mechanism consisting of literally hundreds of moving parts, look out! Is the meter built to take a lot of punishment? Is the coin slot protected against freezing rain and snow? Will the manufacturer furnish proof of the meter's dependability—not for a year or two, but for five or ten years and more?

Most parking meters give a good account of themselves at the outset. What about five or ten years from now? Can they be depended upon to keep operating year after year with earning capacity undiminished? Will the cost of maintenance be prohibitive?

When you shop for parking meters be sure to get satisfactory answers to all these questions. Check on-the-street records, and above all, the cost of maintenance. Don't buy on unsubstantiated claims, or on the results of laboratory tests alone. Get *all* the facts. Check the experience of cities using meters. Look into meter construction, especially the simplicity of operating units. This is very important.

MI-CO's are rugged, and have a minimum of moving parts—some models as few as six. They are built to stand severe usage and keep going for years.

MI-CO's have an enviable record for low maintenance, high earnings, long life, and unusually dependable service . . . many installations covering a period of ten years and more.

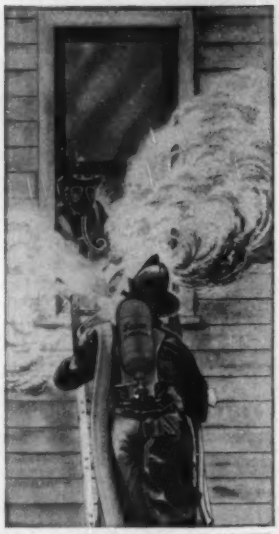
We'll be glad to send you facts and figures which will prove that you can't afford to overlook MI-CO's, if you are shopping for parking meters.

MI-CO METERS, 231 Court St., Covington, Ky.

Division of The Michaels Art Bronze Co., Inc.

DRAMATIC RESCUE
in Woonsocket, R.I.
Tenement Fire-
with Scott Air-Pak
playing a leading part.
FIRE BREAKS OUT AT 2 A.M. IN TENEMENT ROOMS WHERE THREE UNATTENDED CHILDREN ARE SLEEPING—
2 CHILDREN ARE RESCUED. THEN—BUT LET THE LOCAL PAPER TELL THE STORY:
"The third and most daring rescue was effected by Ralph Lauzon, fire chief's chauffeur. "Wearing a Scott 'Air-Pak', a new piece of equipment, Lauzon groped through the dense smoke . . . traced the child by her moaning, finding her unconcious on the floor . . . carried her out."
". . . She was given first aid in the department's rescue truck en route to the hospital. Her condition was reported as poor because of smoke inhalation, when she was admitted, but was reported considerably improved at noon."
From the Woonsocket R. I. "Call" June 11th, 1949

Victims rescued—fires put out with minimum property loss—that's the story of fighting fires with the aid of Scott *Air-Pak* Safety Breathing Equipment. Quickly put in use when smoke or fumes create a breathing hazard, Scott *Air-Paks* get firemen off to a fast start in rescue work, or in effective control of a fire at its source. An ample supply of cool, confidence-inspiring *air* (not oxygen) with *Air-Pak* helps "keep things moving" at top efficiency throughout.



Write for full details!

Get the full story of Scott Air-Pak equipment, and FREE DEMONSTRATION if desired. Write for *Bulletin* 510 and name of nearest distributor — today!

ESTABLISHED IN 1932
Scott
FOR SAFETY—FOR SERVICE

SAFETY EQUIPMENT DIVISION
SCOTT AVIATION CORP.
191 ERIE ST. LANCASTER, N. Y.
Canada: Safety Supply Co., Branches in all Principal Cities
Export: Southern Oxygen Co., 157 Chambers St., N. Y. 7, N. Y.

Catalogs for You

Write directly to the manufacturers, or use coupon on page 21

For Water Analysis

671 The Klett Summerson electric photometer is adaptable for use in water analysis. It can be used for any determination in which color or turbidity can be developed in proportion to substance to be determined. Full details will be furnished by the Klett Manufacturing Co., 179 E. 87th St., New York, N. Y.

Precision-Built Water Meter

672 Calmet, the precision-built water meter, conquers all climates, according to Calmet Meter Division, Well Machinery and Supply Co., Fort Worth, Texas. A catalog published by the company describes the oscillating piston meter of the positive displacement type, and models in sizes of 1, 1½ and 2 inches. The Calmet piston is positive in action, semi-floating, and perfectly balanced.

Air Compressor Opens Service Trenches

673 A powerful low-cost machine for opening service trenches is the Lindsay Model T-33 Air Compressor, a product of the P. K. Lindsay Co., 97C Tileston St., Everett 49, Mass. It can also be employed on other jobs for which light paving breakers and rock drills are employed. This machine is being used b water departments, municipalities, and contractors.

Clear Warning Signals

674 The Sparton Automotive Division of The Sparks-Withington Co., Jackson, Mich., supplies models for most warning signal needs. Model 35 is a general alarm siren distinctly heard up to ½ miles, and has a 1/3-hp motor. Air horns are of the compressed-air operated directional type. Their clear, commanding signals reach up to one mile. Model D2157 is for electrical operation and Model 2158 for manual control operation.

Street-Lighting Equipment

675 The Line Material Co., Milwaukee 1, Wis., issues Bulletin SL3 which describes its L-M Spherolite. These luminaires direct a high percentage of light onto the pavement. Available are a variety of heads, reflectors, and glassware to meet any requirement.

Street Sweepers Decrease Costs

676 Wayne Pick-Up sweepers combine the effective capacity and the speed to make low-cost central dumping practical, reports the Wayne Mfg. Co., 1201 E. Lexington St., Pomona, Calif. One man and this machine eliminate the work of three men and a truck. Model 450 features include rear-wheel steering for maneuverability and low-body designs for full forward vision. Write for descriptive literature.

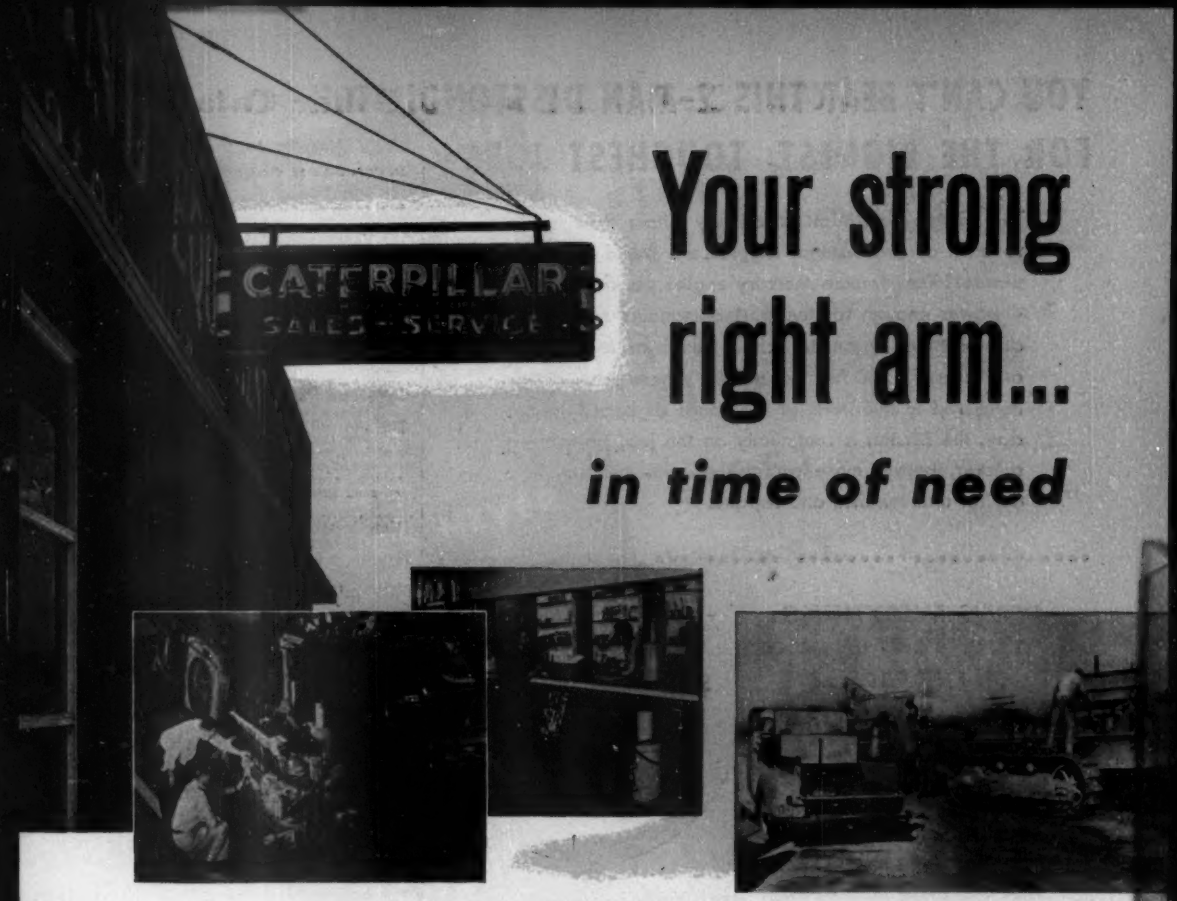
Water Chlorination

677 The Sureclor is an automatic water-chlorinating unit. which can be employed by the smaller, isolated water supplies, such as certain city parks or temporary public gathering places. The Paddock Engrg. Co., 3727 Atwell, Dallas, Texas, states that its product is easy to install and simple to operate, and that it gives dependable service. Fabricated of transparent plastics, it resists corrosive action of chlorine and water, and its chlorinating agent, sodium hypochlorite.

Underground Installation

678 The Earthworm installs underground lines without breaking surface ground. It can be employed for laying water, gas, and sewer pipe, traffic signal lines, etc. This device bores 1,000 feet of underground line per gallon of gasoline. Further information will be sent by the Lube-Jack Co., P. O. Box 1100, Santa Monica, Calif.

(See page 30 for more Bulletins)



Your strong right arm...

in time of need

BECAUSE of the vast defense mobilization program, material shortages and extra production demands have gripped the nation. They affect particularly the heavy industries and the distributors and users of their products. And huge as America's facilities have become in recent years, they still are not large enough to keep pace with military, civilian and non-federal government needs combined.

Nevertheless, as an owner of "Caterpillar" products, your county or municipality is fortunate . . . because "Cat" equipment has been built for long life and to withstand severe working conditions. What's more, it is backed by a dealer organization that is world-famous for experience, accessibility, mechanical facilities and field service to keep you going "come hell or high water."

Since World War II, the already large number of "Caterpillar" sales-and-service establishments has increased greatly. Also since that time, "Caterpillar" and its dealers have developed new techniques for restoring and extending the life of "Caterpillar" products. Today, in their own shops, "Caterpillar" dealers can *rebuild* a great many worn or damaged parts which formerly required completely new replacement. In short, every dealer is richly acquainted with scores of modern ways and means for keeping your machines in good working condition. You can help by doing this:

Take your maintenance problems to your "Caterpillar" dealer* BEFORE *parts are worn beyond repair

Remember that excessively worn parts can cause damage to mating parts; that track parts, pistons and liners, crankshafts, cylinder heads, radiators and other items usually can be salvaged. Your problems are your dealer's problems. Go see him today. He'll do everything in his power to keep your machines operating. Your combined efforts will be reflected in longer equipment life.

CATERPILLAR TRACTOR CO. • PEORIA, ILLINOIS

CATERPILLAR

REG. U. S. PAT. OFF.

DIESEL ENGINES
TRACTORS
MOTOR GRADERS
EARTHMOVING EQUIPMENT

YOU CAN'T BEAT THIS 2-MAN DISSTON FOR THE BIGGEST, TOUGHEST JOBS!

The Disston Two-Man Extra Duty Chain Saw is the favorite of professional loggers the world over. No wonder! That famous Mercury engine packs 12 horses —power enough for the most demanding needs. The clean-cutting Disston-steel chain travels around the rail at a rate of 1,200 feet per minute. Where production is measured in hundreds of thousands of board feet a day, the Disston is continually on the job, performing quicker, better, more profitably—with minimum time out for maintenance and repairs.

HERE'S EVERYTHING YOU WANT IN A CHAIN SAW...

Power. 2 cylinder, 2 cycle, air-cooled Mercury gasoline engine develops 12 hp at 4,000 rpm. Pinion and bevel gear transmission running in oil. Sawing mechanism rotates in any direction, engine remains upright. Dry disc clutch transmits full power to the drive sprocket.

Durability. Shockproof transmission housing. Cradle-balanced tailstock with strong abutment for inverted bucking. Disston-steel guide rail, reversible end for end, top for bottom; hardened and tempered Disston-steel cutting chain. Built-in lubricator automatically oils chain.

Ease of Operation. All controls conveniently located in operating handles. Hand-controlled positive clutch. Rail and tailstock easily detached. Interchangeable rail lengths of 2, 3, 4, 5, 6 and 7 feet. Magnapull self-rewinding starter.

Real Value. Only the best in design and materials will make your investment in a power saw pay off! You get the best in a power saw made with all the skill of America's oldest saw manufacturer, with all that the best entails: low maintenance, long-range economy.

Don't forget the equally tough little brother of the big Two-Man—the popular Disston One-Man Saw—light in weight but with plenty of power for most woodcutting jobs.

A tip for present Disston Saw owners:

Follow the simple FIGHT WASTE preventive maintenance instructions which are available to you free of charge. Send for the valuable check-up charts, the illustrated maintenance folder, the detailed handbooks. Above all, rely on the services of your Disston Dealer.

Call your Disston Dealer today for a demonstration.

HENRY DISSTON & SONS, INC.

110 TACONY, PHILADELPHIA 35, PA., U.S.A.

In Canada, write:
2-20 Fraser Ave.
Toronto 3, Ont.

Other Catalogs

Write directly to the manufacturers, or use coupon on page 21

Buy Salt Now For Winter Use

679 The Cayuga Rock Salt Co., Inc., Myers, N. Y., reports that now is the time of year to plan your quota of rock salt for snow and ice control next winter. Three reasons to buy early are that priority is given to the railroads, industry, and to the government. Order now and the salt will be delivered in 6 weeks or more. For complete information, write to the company.

Cast-Iron Pipe

680 Information on Super de Lavaud cast-iron pipe will be supplied by the Alabama Pipe Co. of Anniston, Ala. Centrifugally spun, it is available in modern lengths. The pipe is cast centrifugally in alloy steel molds, producing a product that is chill free, dense, close-grain structure.

Distribution Transformers

681 The Moloney Electric Co., St. Louis 20, Mo., has published Bulletin No. H-305 covering distribution transformers 100 kva and smaller, 15,000 volts and below. The company's HiperCore transformers have cores of high permeability, oriented grain, and cold-reduced silicon steel. Model CSP is manufactured in various classifications for users who prefer built-in protective equipments, and the conventional type for those who prefer to supply their own surge protection and fuse cutouts.

Fence Protects Water Supplies

682 Cyclone fence protects water reservoirs and power plants against destruction by trespassers. It is also employed to control airport traffic and for protection on many kinds of municipal properties. The equipment is available in various heights and styles to meet the needs of every installation. Complete information will be furnished by the Cyclone Fence Co., Waukegan, Ill. When writing for a copy of *Your Fence*, address your query to Dept. B-61.

Solves Paving Problems

683 Bitumuls solves your three basic paving problems. It penetrates uniformly and deeply without heating through closely interlocked stone, damp or dry stone; mixes easily and uniformly with damp, dense materials, and seals with precision. For copies of Bitumuls booklets, write to the American Bitumuls Co. at 200 Bush St., San Francisco 4, Calif., which covers the East, or to the Stancal Asphalt and Bitumuls Co., 200 Bush St., San Francisco 4, Calif., which covers the West.

Double-Suction Pumps

684 Bulletin No. 218A, issued by The American Well Works, Aurora, Ill., describes the manufacturer's double-suction pumps and lists specifications. The casing of No. 4000, horizontal type, is made of close-grained, gray iron, split horizontally on the center line with machined parting flanges bolted and doweled together. Water seal passages are cast integral with the top half casing. The company also supplies a technical supplement HM-1 on its Homomix, a rapid chemical mix unit that needs no mixing tank.

For Public Rest Rooms

685 *The American-Standard Better Rest Room Guide* is the title of a pamphlet issued by the American Radiator and Standard Sanitary Corp., Pittsburgh 30, Pa. The publication illustrates the company's equipment among which are Glenco water closets, which have quick quiet, syphon jet flushing action, Lucerne lavatories and Washal urinals, made of vitreous china that is simple to clean, and the Sanistand fixture, the new women's urinal which offers a choice of flush valves.

(See page 163 for more Bulletins)

ENGINEERED RIGHT IN THE

*1st PLACE

SO AS NEVER TO BE IN

2nd PLACE

FIRST multiple-coin meter

FIRST combination Penny-Nickel meter

FIRST 1-to-15 Penny meter

FIRST 5-Nickel or One Quarter meter

FIRST and only meter to take a DIME

FIRST fully cumulative meter

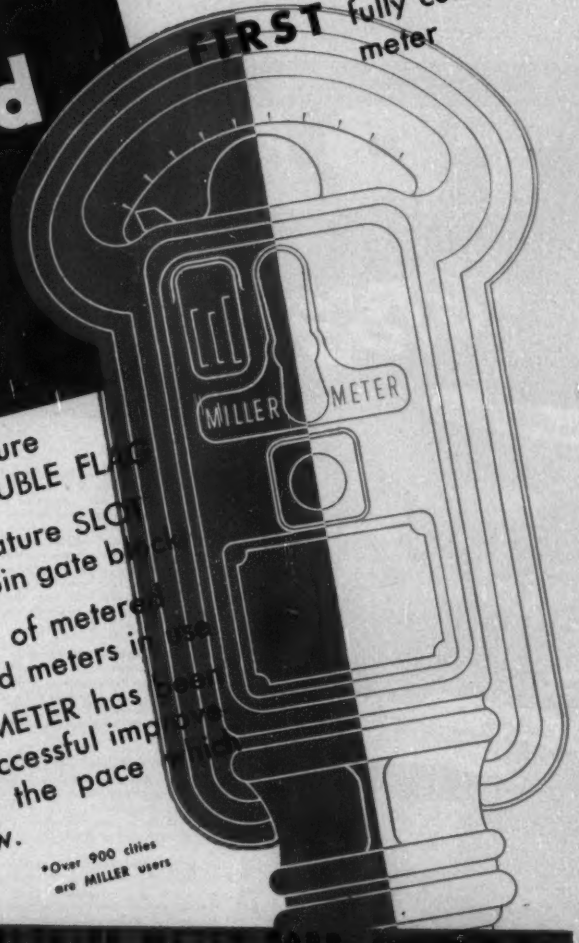
FIRST meter to feature VISUAL TROUBLE FLA

FIRST meter to feature SLO CLOSER (coin gate b

FIRST in number of meter cities* and meters i

. . . in fact MILLER METER has FIRST with every successful imp ment that has set the pace others try to follow.

*Over 900 cities are MILLER users



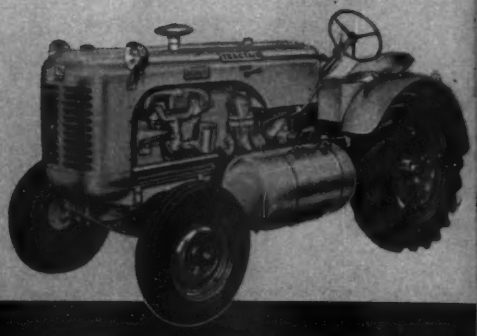
DUNCAN PARKING METER CORP.

LE ROI

108 Tractair, equipped with backfill blade, air-powering a Le Roi-CLEVELAND 18-lb. Model 31 Clay Digger. You can also use Tractair to run easy-holding Le Roi-CLEVELAND rock drills, hard-hitting pavement breakers, smooth-handling backfill tampers, and the new light wagon drill.

Le Roi gives you more for your MONEY!

more utility
more profits



TRACTAIR

versatility gives you

Digging

Hydraulically-operated Back-Hoe — Bucket sizes 12" to 22". Digging depth 6 to 7 feet. Swing 60° each side of center — a stop is provided for cutting straight trench. A stabilizing bar protects Tractair from twisting and digging strains. This tractor-compressor-back-hoe combination offers tremendous savings on digging jobs too small for power shovels, too big to be done economically with hand labor. Besides cutting trench, this unit also ideal for cemetery grave digging.

Pavement Patching

Le-Roi CLEVELAND Patcher mounts on the rear platform of a Tractair. It drills closely spaced holes within a 7-foot radius, then breaches the section of pavement loose for easy removal. In this job the bricks were removed first to get to the pavement underneath.

Mud Jacking

Trac-Jac consists of a Le Roi-CLEVELAND air-feed sinker drill mounted on Tractair. Feed and drilling controls are within easy reach of the operator. The mobility of this unit makes it ideal for mud-jacking and many other applications.

Wagon Drilling

Tractair Mobildrill — a compressor and wagon drill in a single, self-contained, self-propelled unit. Universal mounting and swinging boom permit drilling at any angle. Drilling is easier and faster, thanks to Le Roi-CLEVELAND air feed.

Extra Hours of Usage

. . . lets you use economical air power to do more jobs at lower cost

Tractair is a combination tractor and air compressor. Thanks to low center of gravity and good traction, it can go 'most everywhere — doesn't tie up trucks and men for transportation, saves you time and money.

That's why you can put 105 cfm of useful, economical air power to work wherever you need it — use Le Roi-CLEVELAND air tools for breaking pavement, digging, drilling rock, tamping fill, vibrating concrete, driving form pins, and many other tasks.

The money-saving usefulness of Tractair can be multiplied. Just add our front-end loader (with its 8 quickly interchangeable accessories) and you can load, lift, backfill, etc. And Tractair offers you another new attachment, too — a hydraulically controlled back-hoe for digging ditches 12 to 22 inches wide and 6 to 7 feet deep. Air power from Tractair increases the usefulness of the back-hoe by running Le Roi-CLEVELAND breakers whenever it's necessary to break through pavement or frost.

It pays you to investigate Tractair. See your Le Roi distributor — he can show you a unit at work cutting costs with extra hours of usage.

T-16

LE ROI COMPANY

MILWAUKEE 14, WISCONSIN

PLANTS: MILWAUKEE • CLEVELAND • GREENWICH, OHIO

Distributors in all these principal cities

ALABAMA: Birmingham, Mobile — ARIZONA: Phoenix — ARKANSAS: Little Rock — CALIFORNIA: Bakersfield, Long Beach, Los Angeles, San Francisco—COLORADO: Denver, Grand Junction — CONNECTICUT: Hartford — FLORIDA: Jacksonville, Miami, Tampa — GEORGIA: Decatur—IDAHO: Boise, Idaho Falls, Twin Falls, Wallace—ILLINOIS: Chicago —INDIANA: Indianapolis—IOWA: Cedar Rapids, Waterloo—KANSAS: Great Bend, Kansas City, Pratt, Wichita — KENTUCKY: Lexington, Louisville — LOUISIANA: New Orleans, Shreveport — MAINE: Augusta — MARYLAND: Baltimore, Hyattsville — MASSACHUSETTS: Hyde Park, Newton Highlands — MICHIGAN: Detroit, Grand Rapids — MINNESOTA: Duluth, Minneapolis — MISSISSIPPI: Jackson — MISSOURI: Joplin, St. Louis — MONTANA: Billings, Great Falls — NEBRASKA: Omaha — NEW HAMPSHIRE: Manchester — NEW JERSEY: Cranford, Kingston — NEW MEXICO: Albuquerque — NEW YORK: Albany, Binghamton, Buffalo, Long Island City, Newburgh, Rochester, Saugerties, Syracuse, Woodside (L.I.) — NORTH CAROLINA: Charlotte — NORTH DAKOTA: Fargo — OHIO: Cincinnati, Cleveland, Columbus, Dayton, Toledo—OKLAHOMA: Oklahoma City, Tulsa—OREGON: Portland — PENNSYLVANIA: Bethlehem, Harrisburg, Philadelphia, Pittsburgh — RHODE ISLAND: Providence — SOUTH CAROLINA: Columbia — SOUTH DAKOTA: Sioux Falls — TENNESSEE: Chattanooga, Knoxville, Memphis, Nashville — TEXAS: Dallas, El Paso, Houston, Lubbock, San Antonio — UTAH: Salt Lake City — VIRGINIA: Richmond, Roanoke — WASHINGTON: Seattle, Spokane — WEST VIRGINIA: Clarksburg, South Charleston — WISCONSIN: Milwaukee — WYOMING: Casper

Photomap and matching Contour Map are typical of the Fairchild two-way mapping service used by cities such as Cincinnati, San Diego, Tacoma and West Springfield, Mass.

with Fairchild's *two-way* aerial maps

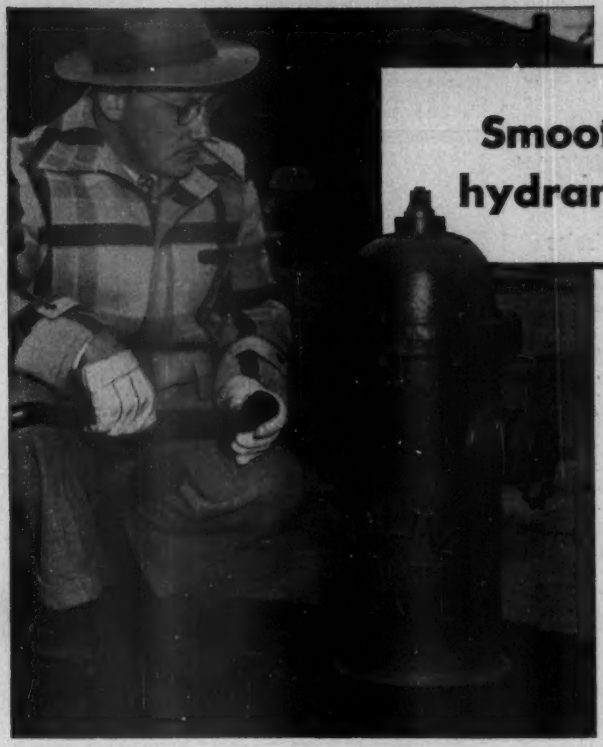
SCARCELY A DAY GOES BY without your City Engineers being asked a question properly settled by referring to maps. That's why Fairchild provides two maps of the same area... one for planning and one for engineering. City Engineers can make decisions without sending a survey party into the field. You save time and money and you eliminate unnecessary concern on the part of property owners.

MANY CITIES, large and small, have discovered real value in retaining Fairchild on an engineering basis to carry out a comprehensive mapping program. Under this plan, city engineers continuously benefit from Fairchild's consultation service,—are enabled to map city districts in the order of greatest need—and eventually secure two-way maps for the entire area as funds become available year by year.

THE FAIRCHILD METHOD provides you with a precise photomap, plus accurate contour maps. Nearly every problem can be planned from a photomap and engineered from a contour map. In street realignment, for example, the photomaps identify which property is least disturbed by various changes, because every house and tree of your city is revealed in complete and accurate detail. The contour maps made to your desired scale facilitate the determination of grades, curves and costs.

WRITE for "Focusing on Facts"... a free booklet describing how Fairchild Aerial Survey Methods, developed over a twenty-seven year period, can help your City plan wisely for tomorrow. Address your request to Fairchild Aerial Surveys, Inc., 224 East 11th Street, Los Angeles 15, Calif., or 21-21 Forty-first Avenue, Long Island City, New York.

FAIRCHILD AERIAL SURVEYS, INC.
PHOTOGRAMMETRIC ENGINEERS



Smoothest operating hydrant on our system!

. . . that's what they're saying about the new Darling B-50-B ball bearing operated fire hydrant

MR. JOSEPH M. ROGEVEN, Superintendent of Water Distribution, City of Jackson, Michigan, is pictured above with one of his new Darling B-50-B hydrants. In a recent letter he has this to say . . .

"Your new B-50-B ball bearing hydrant, installed several months ago, has been examined and tested frequently. It is the easiest and smoothest operating hydrant on our system.

"We have been using Darling hydrants since 1907 and have several other makes also in our system, but we feel this B-50-B is really revolutionary. The new 'O' rings, replacing conventional packing, will mean less maintenance cost and worry, which is an item we consider carefully when selecting our equipment."

Mr. Rogeven could go on to tell you that the B-50-B is a packless, *dry-top* hydrant . . . and that its ball bearing action easily cuts operating torque a full 50 percent. And that's only the beginning! So why not get *all* the facts?

Simply write for data bulletin No. 5007

DARLING VALVE & Manufacturing Co.

WILLIAMSPORT 10, PA.

CUT DIGGING COSTS

with the

new Sherman Power Digger

Patented, actuated bucket gives you selective digging action, better loading, greater versatility.

All-hydraulic action—made possible by heavy-duty hydraulic cylinders—assures efficient performance.

SPECIFICATIONS

Shovel reach below ground surface	8 feet
Digger reach behind tractor	10 feet
Swinging arc	140°
Trench width, standard digging shovel, single cut	18 inches
Digging shovel capacity	3.5 cu. feet
Loading shovel capacity	.5 cu. feet
Loading clearance, digging shovel, loaded	7 feet
Loading clearance, loading shovel	10 feet

Standard tractor mounting gives unmatched maneuverability and transportability.

•

Digs ditches, trenches, footings, culverts, basements and other excavations.

•

Handles roots, rocks, hard clay and oiled road surfaces.

Works well behind the tractor at any angle.

•

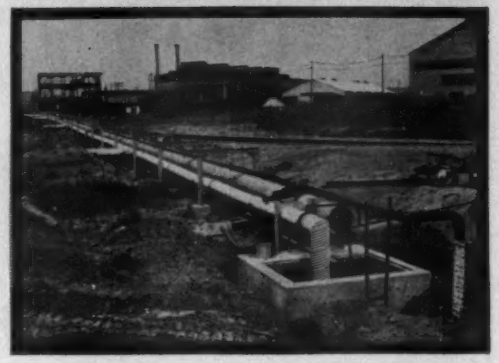
Actuated bucket raises high enough to load standard dump truck.

WRITE FOR LITERATURE TODAY!

Designed, Engineered and Manufactured Jointly By
SHERMAN PRODUCTS, INC. • Royal Oak, Michigan
WAIN-ROY CORP. • Hubbardston, Massachusetts
Sold Exclusively By SHERMAN PRODUCTS, INC.

SHERMAN PRODUCTS, INC., Department No. 111 Royal Oak, Mich.

RIC-WIL RECORD... 10,000,000 FEET OF TOP-EFFICIENCY INSULATED PIPING!



During the past forty years, Ric-wiL has designed and manufactured over 10,000,000 feet of high-efficiency conduit systems and Prefabricated Insulated Piping. In thousands of industrial, commercial and residential installations, Ric-wiL operating performance has proved to engineers, architects and contractors that Ric-wiL is "the Greatest Name in Insulated Piping Systems".

Ric-wiL PREFABRICATED INSULATED PIPING — UNDERGROUND OR OVERHEAD

THE RIC-WIL COMPANY • CLEVELAND, O.

FILTER SAND AND GRAVEL

Produced from an inland pit hence free from river contamination and foreign matter.

Shipment in bulk or bagged.

Many of the larger filter plants throughout the United States are equipped with our products.

Prompt Shipment

Inquiries and orders solicited

NORTHERN GRAVEL COMPANY

Muscatine, Iowa

P. O. Box No. 307 **Phone: 193**

AN EMBLEM OF MERIT

When the name HERSEY is stamped on the lid of a water meter, experienced water works officials know that under it they will find efficient performance, accurate registration and low maintenance cost. *Over 65 years of experience has won the reputation for*

HERSEY

HERSEY MANUFACTURING COMPANY

SOUTH BOSTON, MASS.

BRANCH OFFICES: NEW YORK — PORTLAND, ORE. — PHILADELPHIA — ATLANTA — DALLAS — CHICAGO SAN FRANCISCO — LOS ANGELES

. . . less TRAVEL TIME

Combining extra lift capacity with rubber-tired speed and mobility, Koehring 25-ton Truck Crane lifts 11.1 tons more than its crawler rating. Extra stability of truck mounting also increases boom length from 75 feet to a maximum 110 feet, with jib. Hinged boom folds back for ample travel clearance, saves time on every move.

Rolling along at 30 to 35 m.p.h. speeds, this mobile, rubber-tired Truck Crane reduces travel time, gains productive work-time. It drives anywhere around town at normal traffic speeds . . . gets to the job fast, goes right to work, moves on to the next job sooner. No waiting for trailer, no loading and unloading delays, no planking necessary.

Figure what these three big gains — in more lift capacity, extra reach and faster speeds — can mean on your scattered city maintenance work. Remember, too, this 25-ton Truck Crane is readily converted to dragline, clamshell, pile driver, ¾-yard shovel or hoe. Other Koehring heavy-duty sizes, on crawlers, lift up to 79½ tons, have dipper capacities up to 2½ yards. For more complete information, call on your local Koehring distributor, or write to us for the latest excavator catalogs.

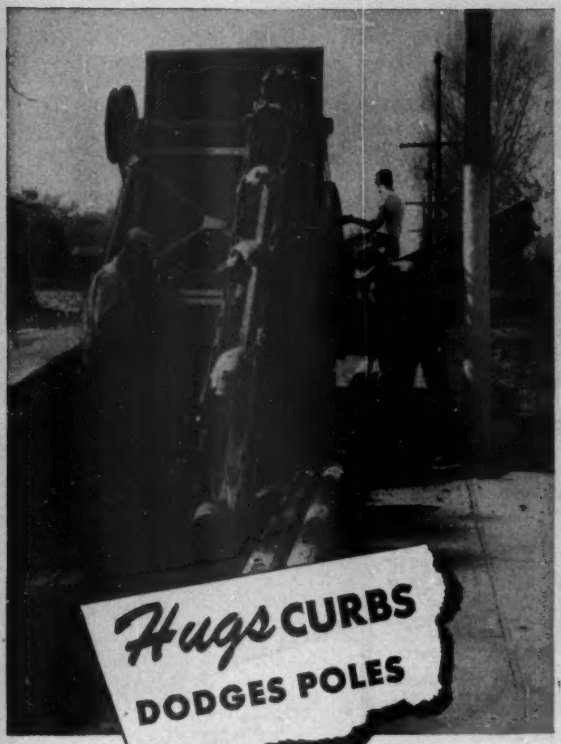
MUD-JACK® STABILIZES SUB-GRADE Without interrupting traffic at city bus terminal (above), Koehring Mud-Jack raised sunken slabs and stabilized sub-grade under the paved parking area. Small holes were drilled through the pavement . . . then, inexpensive soil-cement slurry pumped into the holes raised the concrete, leaving firm, lasting support. When sidewalks, gutters settle, use Mud-Jack. No detours, no inconvenience to public.

KOEHRING HEAVY DUTY

KOEHRING

COMPANY • MILWAUKEE 16, WIS.

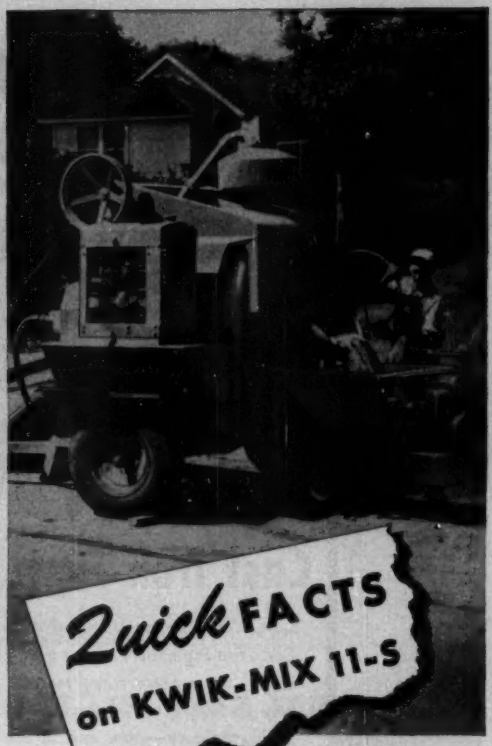
SUBSIDIARIES: JOHNSON • PARSONS • KWIK-MIX



Hugs CURBS DODGES POLES

TRENCHING along curbs, utility pole lines, or next to buildings in narrow streets and alleys, Parsons 221 Trenchliner® speeds work schedules because shiftable digging boom cuts within 10" of either side of machine. Without interrupting digging production, spoil conveyor dodges side obstructions . . . shifts through machine by power in less than 1 minute. Conveyor belt is instantly reversible in direction to dump right or left. Arc of conveyor provides sufficient height for loading into trucks, or gives low-level drop for close-to-trench deposit.

30 digging feeds produce from 6.5" to 13'-10" of smooth-walled trench per minute . . . 16" to 36" wide, and up to 8'-6" deep. With full reverse of all operations, versatile 221 Trenchliner also makes vertical set-ins . . . undercuts sidewalks, sewers or old mains. Buckets, side-cutters have easy-in, easy-out "Tap-In" teeth. Write for bulletin. Ask, too, about larger ladder-type Trenchliners, and heavy-duty wheel-type model.



Quick FACTS on KWIK-MIX 11-S

TO produce top-quality concrete fast, at lowest cost, on street maintenance, sidewalks, driveways, curb repairs and foundations, Kwik-Mix 11-S Dandie has: wide, power-raised skip, selective skip shaker, double mixing action. Exclusive, Tilted Flow-Line Discharge Chute pours full 12.1 cu. ft. batch in 7 seconds. Fast-trailing, easy-spotting on 2 or 4 wheels, 11-S has side or end discharge. Optional: water pump, Batchmeter, auxiliary hoist, distribution spout, tower loader for overhead discharge.

Other sizes and types of Kwik-Mix Dandie® concrete mixers: 3½-S, 6-S and 16-S.

To save labor on hauling and pouring, also check Moto-Bug® (shown above) Kwik-Mix 10 cu. ft. power wheelbarrow.

BITUMINOUS mixers in Kwik-Mix line include 10 and 14 cu. ft. sizes. Readily adaptable as stationary overhead plants, or portable rubber-tired units. See your Kwik-Mix distributor, or write us for facts.

EX148

PARSONS COMPANY • NEWTON, IOWA
KOEHRING SUBSIDIARY

KWIK-MIX COMPANY • PORT WASHINGTON, WIS.
KOEHRING SUBSIDIARY

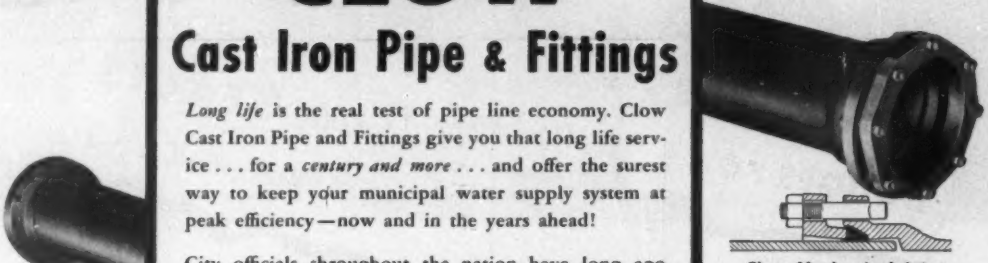
When they're in service 100 Years...
THEY'LL STILL BE FULL OF LIFE!

CLOW
Cast Iron Pipe & Fittings

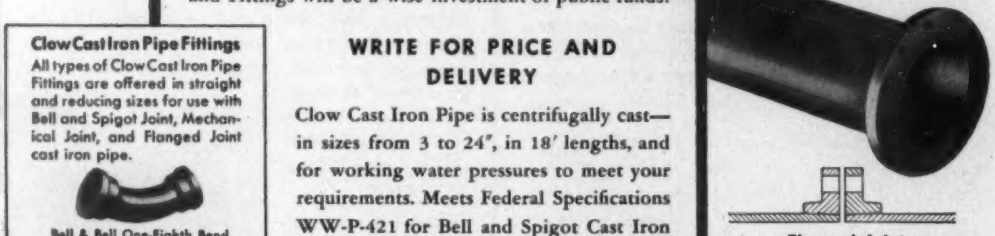
Long life is the real test of pipe line economy. Clow Cast Iron Pipe and Fittings give you that long life service . . . for a *century and more* . . . and offer the surest way to keep your municipal water supply system at peak efficiency—now and in the years ahead!

City officials throughout the nation have long ago *proved* that it actually costs less to use Clow Cast Iron Pipe and Fittings. They have found that after installation, practically no maintenance, repair or replacement is necessary. So prove to *yourself* that Clow Cast Iron Pipe and Fittings will be a wise investment of public funds!

Bell and Spigot Joint
The common bell and spigot type of cast iron pipe joint with standard water bell . . . for poured and calked lead make up.



Clow Mechanical Joint
A time-saving, easily installed mechanical cast iron pipe that reaches the job with all joint materials complete.



Flanged Joint
For exposed pipeline work. Flange dimensions and drilling conform to requirements of A.S.A. Class 125 for flanged fittings and valves.

Clow Cast Iron Pipe Fittings
All types of Clow Cast Iron Pipe Fittings are offered in straight and reducing sizes for use with Bell and Spigot Joint, Mechanical Joint, and Flanged Joint cast iron pipe.

Bell & Bell One-Eighth Bend

Mechanical Joint 90° Elbow

90° Standard Flanged Elbow

Special Fittings
Clow Foundries are well equipped to produce your special fittings promptly and accurately, to meet particular requirements, and to solve unusual installation problems.

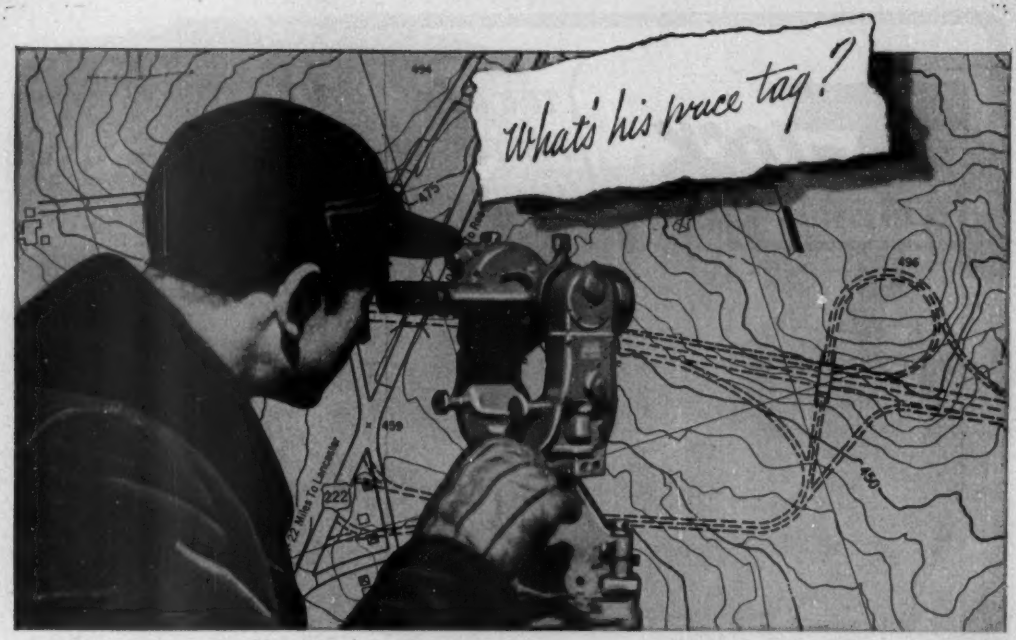
WRITE FOR PRICE AND DELIVERY

Clow Cast Iron Pipe is centrifugally cast—in sizes from 3 to 24", in 18' lengths, and for working water pressures to meet your requirements. Meets Federal Specifications WW-P-421 for Bell and Spigot Cast Iron Pipe for Water. Clow pipe can be easily cut in the field if needed, and drilling and tapping it for services results in superior threads and perfect connections.

JAMES B. CLOW & SONS
201-299 North Talman Avenue • Chicago 80, Illinois

and their National Cast Iron Pipe Division Birmingham, Ala.; subsidiaries Eddy Valve Co., Waterford, New York Iowa Valve Co., Oskaloosa, Iowa

CAST IRON



YOU CAN MAP YOUR CITY FOR FAR LESS THAN YOU THINK!

Now you can get the up-to-date map facts you need. How much? You can have complete, new photo-map coverage of your city for a few hundred to a few thousand dollars.

These AERO photo-maps (or photo-mosaics) are good for all general planning purposes. They are detailed and accurate in horizontal positions.

And for engineering planning, AERO produces topographic maps. Their costs vary according to scale, contour interval, total area. But whatever the cost, *you can be sure it will be less than ground surveys*—often only half the cost!

Here's Why You Need Up-To-Date Maps . . .

1. For industrial expansion plans.
2. For new schools, playground and park sites.
3. For sewage and drainage problems, traffic control, and all the engineering problems of city growth.
4. For selling your city to new industries.

Your city engineers are busy. Why worry with hiring scarce engineering personnel for a short-term job? Our staff of 200 mapping experts can fulfill your requirements—faster and cheaper.

Where can you buy so much for your city's future for so little? Write AERO today.

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236 E. COURTLAND ST., PHILA. 20, PA.
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TOPOGRAPHIC MAPS • PLANIMETRIC MAPS • PRECISE AERIAL MOSAICS • AIRBORNE MAGNETOMETER SURVEYS • RELIEF MODELS • COLOR PHOTOGRAPHY

T-LOCK AMER-PLATE

THE NEW PROTECTIVE LINING FOR CONCRETE PIPE AND STRUCTURES

T-LOCK AMER-PLATE is a practical sheet lining that provides enduring and economical protection despite extremely corrosive conditions. It is the result of many years experience in the manufacture and application of AMERCOAT protective coatings for all types of industries.

This heavy-duty protective lining is especially adapted for use in sewage lines and structures exposed to severe corrosive action where permanent protection is of vital importance.

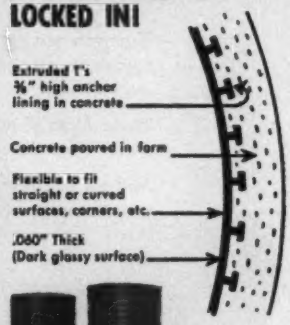
Composed of inert resins and plasticizers, AMER-PLATE is impervious to gases, highly resistant to most acids, alkalies, alcohol, oils, salts and petroleum products, has very low moisture vapor transfer and will not support combustion. Odorless and tasteless, it contains no toxic materials.

T-LOCK AMER-PLATE is applied to the inner forms of concrete pipe, structures and tanks. When the concrete is poured, the Tees are embedded and locked into the concrete and become an integral part of the finished product.

Over 10 years of development and testing have proved it to be practically indestructible in the service for which it is designed.

Amercoat CORPORATION
A Division of
American Pipe and Construction Co.
4809 Firestone Blvd., South Gate, Calif.

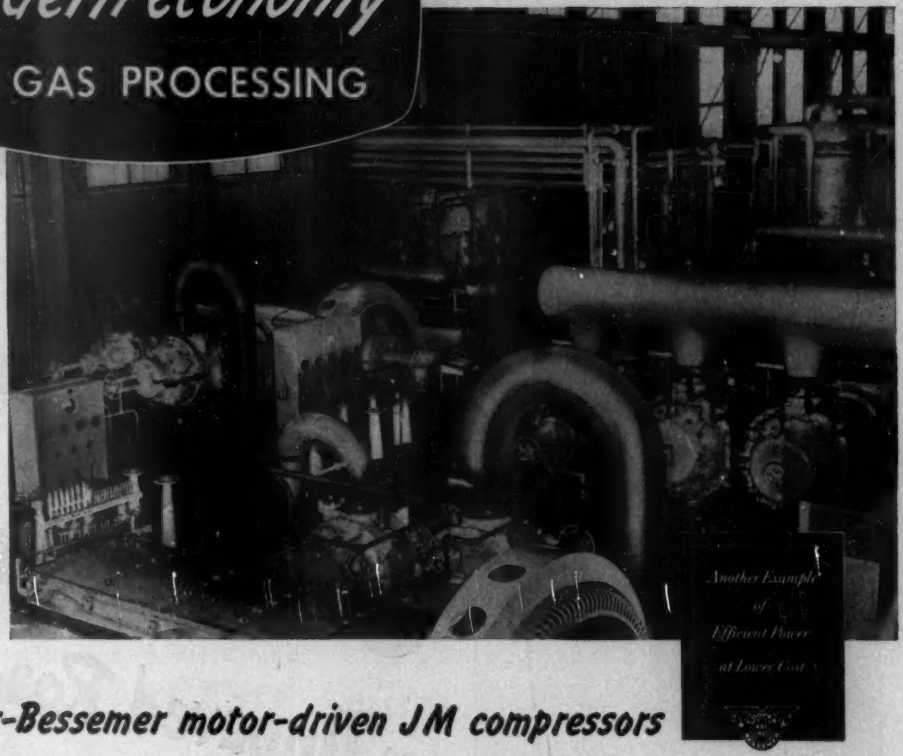
Here's how this tough, long-lasting, corrosion-resistant lining is LOCKED IN!


Extruded T's ⅜" high anchor lining in concrete
Concrete poured in form
Flexible to fit straight or curved surfaces, corners, etc.
.060" Thick (Dark glassy surface)

Placing pipe reinforcing cage over T-Lock sheet set up around inner-form.

Example of T-Lock sheet formed around complex structural members.

TEAMED UP FOR *modern economy* IN GAS PROCESSING



Cooper-Bessemer motor-driven JM compressors

● These 3 Cooper-Bessemer JM motor-driven compressors are busy saving dollars month in, month out in one of the nation's biggest ammonia producing plants.

If you wonder where the unusual economy comes in, the answer is quite simple. Because these JM's are exceptionally compact, without sacrificing accessibility or ruggedness, they conserve costly space, require less investment in foundations, piping and over-all installation requirements.

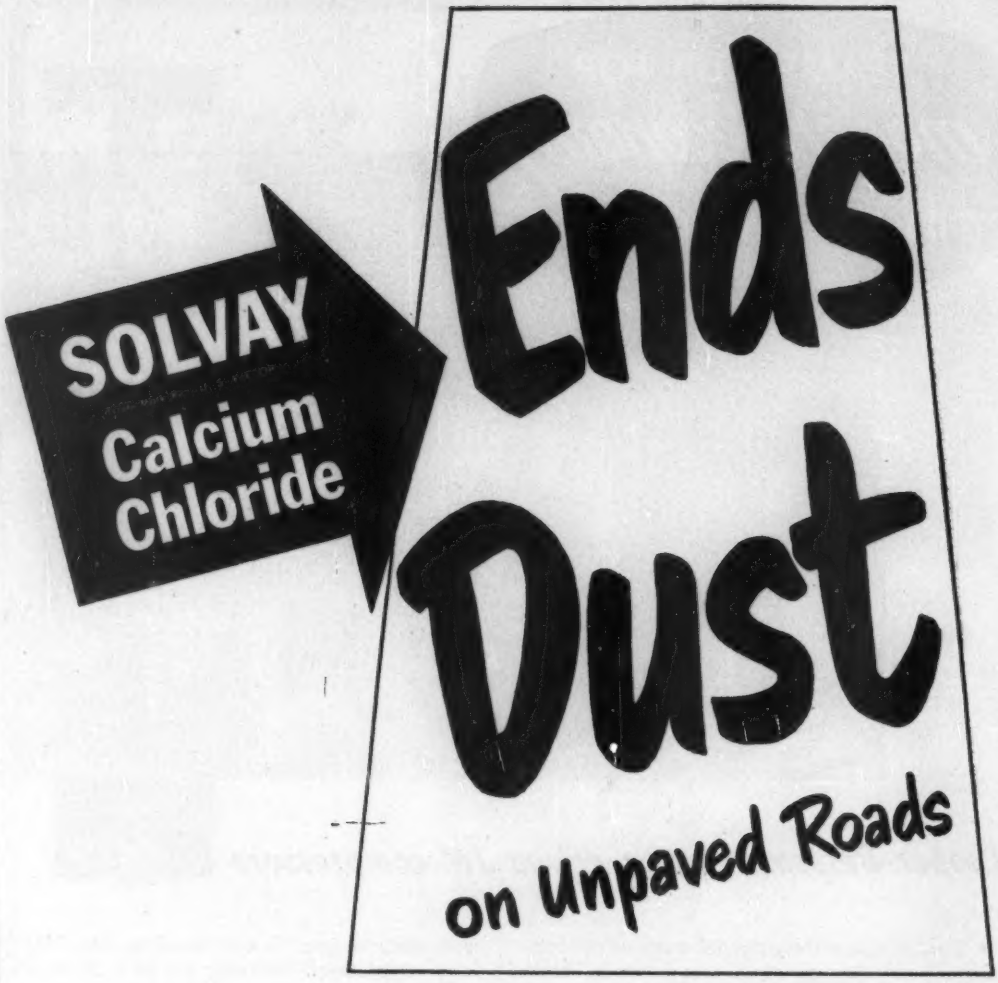
Moreover, it's demonstrated time and again that these modern, compact Cooper-Bessemer compressors retain the long life qualities of the much bigger slow speed units. Naturally this adds up to low upkeep cost on any long range basis you care to name.

If your plans call for motor-powered compressor service, up to 3000 hp, let us give you some interesting facts on the Cooper-Bessemer features ready to save you money year in, year out.

The
Cooper-Bessemer
Corporation

MOUNT VERNON, OHIO — GROVE CITY, PENNA.

New York Washington, D. C. Bradford, Pa. San Francisco Houston, Dallas, Greggton, Pampa and Odessa, Texas Seattle Tulsa Shreveport St. Louis Los Angeles Chicago Caracas, Venezuela Cooper-Bessemer of Canada, Ltd., Halifax, Nova Scotia Gloucester, Mass. Calmes Engineering Co., New Orleans, La.



- **Easy to Use**
- **Low in cost**
- **Saves surfacing material**
- **Reduces maintenance**
- **Safe — clean, colorless, odorless**

WRITE FOR LITERATURE

SOLVAY SALES DIVISION

ALLIED CHEMICAL & DYE CORPORATION

40 RECTOR ST., NEW YORK 6, N. Y.

4 Miles of Steel Water Main Installed in Cleveland

This photograph was taken recently during construction of Section 1 of the Division-Almira Water Main, originating at the Division Avenue Pumping Station in Cleveland. The new main consists of approximately 23,000 ft of 48 in. and 36 in. Bethlehem Tar-Enameled Water Pipe. Nearly 250 girth seams in the line were field-welded; other joints were made with mechanical couplings. The Kalill Company, Cleveland, was the contractor.

Bethlehem Tar-Enameled Water Pipe is ideal pipe for water-main service because of its durability and economy. It can be installed conveniently in any type of terrain. The pipe is resistant to incrustation and corrosion because it is generously coated, both inside and out, with a smooth, uniform layer of coal-tar enamel. Leak-proof girth seams can be obtained by welding or riveting, or with mechanical couplings.

Bethlehem Tar-Enameled Water Pipe is made in 40-ft lengths, and in all diameters from 22 in. i.d. up to the largest permitted by common carriers.

If you'd like to have additional information about this top-quality pipe, get in touch with the nearest Bethlehem office.

BETHLEHEM STEEL COMPANY
BETHLEHEM, PA.

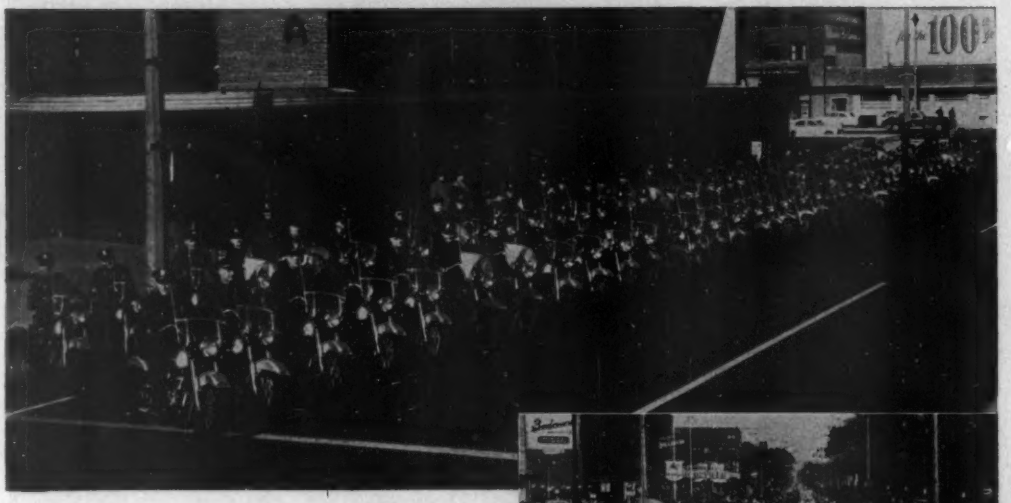
On the Pacific Coast Bethlehem products are sold by
Bethlehem Pacific Coast Steel Corporation
Export Distributor: Bethlehem Steel Export Corporation

★ BETHLEHEM STEEL ★

BETHLEHEM *Tar-Enameled* WATER PIPE

Milwaukee...

HOME OF MOTORCYCLES and HIGH PUBLIC SAFETY RECORDS



Police of Milwaukee area continue tradition of outstanding achievement in effective law enforcement and traffic control

Nationally famed for brilliant accomplishments in crime detection and prevention, Milwaukee police are equally renowned for their remarkable traffic control record. Month after month, Milwaukee ranks among the leaders in the national safety poll. And, as in hundreds of other cities where accident prevention and law enforcement is at high efficiency, Harley-Davidsons are standard police motorcycle equipment. For complete information about Harley-Davidson Police Motorcycles, Servi-Cars and Sidecars call your dealer, or write

Among the many important duties performed by motorcycle officers is the escorting of parades. They lend a dramatic touch to such events and simplify the work of clearing parade routes and keeping spectators in line. In fact, on any occasion, the mere sight of uniformed officers on big, powerful Harley-Davidsons is a restraining influence that helps to keep even the largest crowds orderly and good-humored.

HARLEY-DAVIDSON MOTOR COMPANY, Milwaukee 1, Wisconsin

HARLEY-DAVIDSON

MOTORCYCLES POLICE BETTER TRAFFIC CONTROL **SERVI-CARS**

HERE'S ASPIRIN

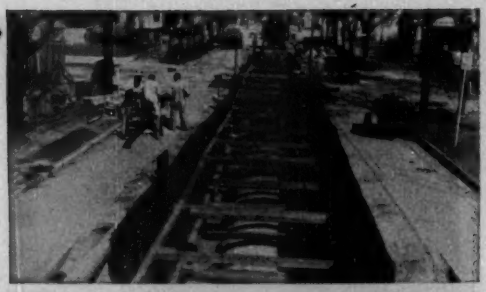
for construction headaches

Have you heard how Armco Steel Sheeting takes the headaches out of many construction and maintenance jobs?

This durable sheeting has ample strength plus light weight and a small displacement area. It can generally be driven to full penetration without excavating. Either a hand maul or power hammer does the job quickly and easily.

For utmost economy, Armco Sheeting can be used again and again. A convenient hole near the top of each section facilitates pulling. The units nest together for convenient storage.

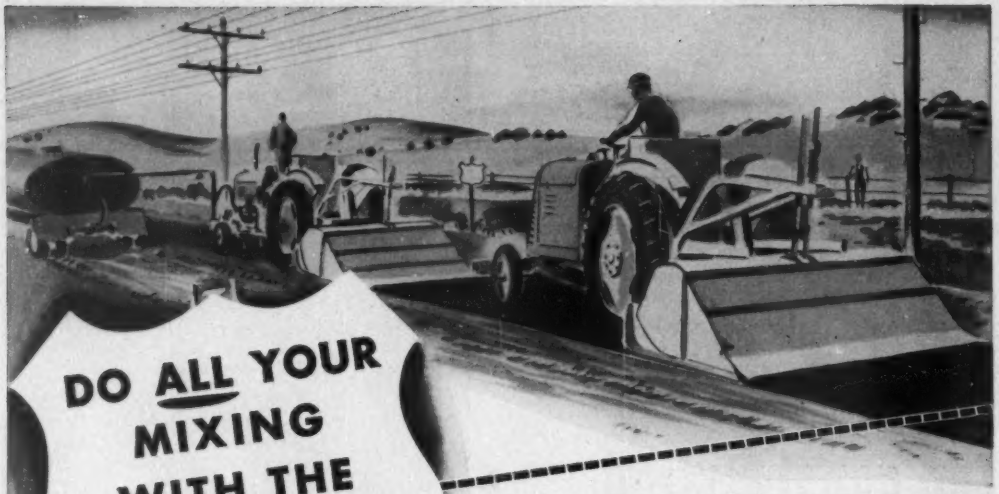
Armco Sheeting comes in flange and interlocking types for both temporary and permanent uses. It is a work-saving, cost-cutting tool for shoring trenches; building low retaining walls and cofferdams; preventing bank erosion on streams and lakes; and many similar applications. Write for complete information. Armco Drainage & Metal Products, Inc., 3721 Curtis Street, Middletown, Ohio. Subsidiary of Armco Steel Corporation.



(1.) Armco Steel Sheeting protects excavation while sewer break is repaired. (2.) Driving Armco Sheeting for flood wall. (3.) Valuable shore property is restored and protected by installing Armco Steel Sheeting. (4.) A midwestern city uses Armco Sheeting as maintenance equipment.

MORE SCRAP MEANS MORE STEEL . . . TURN YOURS IN TODAY!

ARMCO STEEL SHEETING



DO ALL YOUR MIXING WITH THE SEAMAN

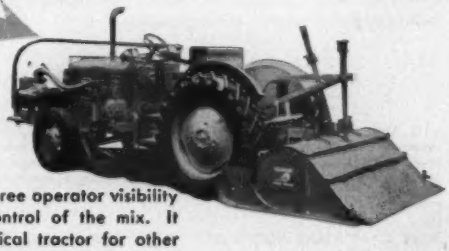
ROAD MIXING with the SEAMAN is the quick, low cost, efficient method. The SEAMAN is engineered and built specifically for that job — just as blades, for example, are built for grading, shoulder work and general maintenance.

The SEAMAN MIXER is designed to mix completely to the bottom of the full selected depth. No unmixed material at the subgrade — and no subgrade material brought up into the mix. Depth control is accurate and positive under all conditions.

And you have complete command of the mix itself at all times. No worries about an unsatisfactory operation even when conditions are adverse, for with the SEAMAN an additional pass to bring the mix up to specification is done quickly and at low cost.

It pays to use the equipment which has been *designed* for its particular job. That's why more and more contractors and highway officials insist that *all* mixing be done with the SEAMAN.

The new, 1951 edition of "Soil Stabilization Methods" is off the press. Completely revised and enlarged, 100 pages of pictures, diagrams and practical construction information. It's FREE. Just ask for Bulletin 25. Write today.



The SEAMAN Self-Propelled (left) is a complete mixing unit which offers full 360 degree operator visibility and accurate control of the mix. It also frees a critical tractor for other work . . .

The SEAMAN TRAV-L-PLANT (right) offers all the advantages of the Self-Propelled unit. It is equipped with tachometer assembly and a volumetric meter is available for the closely controlled application of bitumen. Water also is readily applied.

SEAMAN MOTORS, INC.
292 N. 25th Street
Milwaukee 3, Wisconsin

acids don't affect CLAY PIPE

Only *one* sewerage and drainage material is completely safe from chemical attack—particularly in industrial areas, where factories discharge heavy concentrations of acids and alkalies. Clay Pipe won't corrode, decompose, or disintegrate, because it's *all pure material*, chemically inert, and strengthened by vitrification. It provides *complete* protection against chemical activity — tomorrow, or fifty years from now. Be sure to specify Vitrified Clay Pipe . . . the *only* pipe that never wears out.

NATIONAL CLAY PIPE MANUFACTURERS, INC.
100 N. LaSalle St., Rm. 2100, Chicago 2, Ill.
206 Connally Bldg., Atlanta 3, Ga.
703 Ninth & Hill Bldg., Los Angeles 15, Calif.
311 High Long Bldg., 5 E. Long St., Columbus 15, Ohio

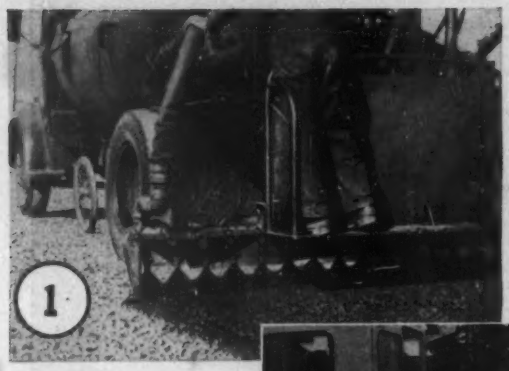
SPECIFY *Vitrified* **CLAY PIPE**

WRITE FOR DETAILED INFORMATION

Additional information and data on Vitrified Clay Pipe and Clay Building Products will be sent on request. State your specific questions. Simply contact the regional office nearest you.

C-151-B

3 Types of Paving Built Better with Bitumuls



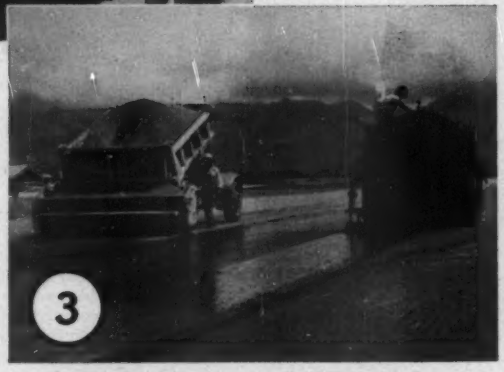
Paving engineers in all parts of the U. S., and in many foreign lands, select BITUMULS—for 3 reasons. It *PENETRATES* throughout interlocked stone without pre-heating. It *MIXES* easily, thoroughly, with damp sands and dense native materials. It *SEALS* with unsurpassed precision.

MAINE—

Highway Department engineers have placed over two million sq. yds. of BITUMULS macadam — a standard type of pavement since 1931. They know how thoroughly it penetrates interlocked stone.

OREGON—

Engineers observe the ease with which BITUMULS mixes with damp native aggregates — and gives early pavement stability. Above is a road near Mount Hood, where crushed aggregate is not readily available.



HONOLULU—

In most highway paving manuals, BITUMULS is a recognized standard for sealing and surface treating. Engineers in Honolulu are no exception—they "shoot" BITUMULS the year 'round.

It PENETRATES

It COATS DAMP NATIVE MATERIALS

It SEALS

Our regional engineers can help you.

In the East

AMERICAN BITUMULS COMPANY

200 BUSH STREET · SAN FRANCISCO 4, CALIF.

Washington 6, D. C. · Baltimore 3, Md. · Perth Amboy, N. J.
Columbus 15, O. · St. Louis 17, Mo. · Baton Rouge 2, La.
Mobile, Ala. · E. Providence 14, R. I. · San Juan 23, Puerto Rico

In the West

STANCAL ASPHALT & BITUMULS COMPANY

200 BUSH STREET · SAN FRANCISCO 4, CALIF.

Los Angeles, Calif. · Oakland 1, Calif.
Portland 4, Ore. · Seattle, Wash. · Tucson, Ariz.

Ask for our BITUMULS BOOKLETS. They are factual, illustrated, and helpful—a valuable addition to your engineering library.

- Bitumuls Penetration Macadam . . ☐
- Bitumuls for Maintenance . . . . ☐
- Bitumuls Sand-Mix . . . . . ☐
- Bitumuls Handbook . . . . . ☐
- Hydropel—Admix for concrete . . . ☐
- Tennis Courts—Laykold & Granstex . ☐
- Fibrecoat—roof and metal coating . ☐

"GO" with EAGLE

For Smooth Flowing Traffic!

You can add more "GO" to your traffic control with proper equipment designed for your individual problems. Eagle manufactures the most complete line of controllers available, for isolated intersections, interconnected progressive systems, traffic or pedestrian-actuated systems. All equipment features the highest quality, engineered parts, interchangeable for lower inventory and less maintenance. Ask your representative or write Eagle Signal today, for an answer to your traffic problem.

For a happier Vacation...

Guests from coast to coast will appreciate Eagle-controlled, smooth-flowing traffic.

EAGLE SIGNAL CORPORATION *Moline, Illinois*

A QUARTER CENTURY OF TRAFFIC CONTROL EXPERIENCE!

HYATTSVILLE, MD., REPORTS:

Thomas G. Vivadelli, of Nance & Vivadelli Co., says: "The use of Dresser Couplings in the installation of this 42" steel water main for the Washington Suburban Sanitary Commission, was a great help in cutting our installation costs. Not only do they save labor costs, but they also make a tighter line. We would highly recommend the use of Dresser Couplings on any project of this nature."

A DRESSER-COUPLED STEEL LINE delivers water cheaper

Be sure you get the best line at the best price. Put steel pipe and Dresser Couplings in your specifications.

The cheapest way to deliver water to the place where it turns into revenue is with a Dresser-Coupled steel line—the line that cuts *installation* costs, *leakage* losses and *maintenance* costs.

Speed in getting water to a new housing or defense project is usually of great importance. Both to the construction schedule of the project and to your own installation costs. And, with a Dresser-Coupled steel line, you save time two ways. First, the long, strong sections of steel pipe mean fewer joints per mile. Second, those joints are more quickly made with Dresser Couplings because these factory-made joints are easy for any workman to install—even in wet weather.

Leakage losses are cut because with Dressers you get controlled gasket pressure, provided by controlled bolt tightness around the joint. Also because these gaskets harmlessly absorb stresses of vibration, contraction and expansion.

Maintenance costs are reduced by permanent joint tightness. Furthermore, with Dressers there is no heat in joint-making to damage the glass-smooth pipe lining. High carrying capacity is sustained.

From all standpoints, a Dresser-Coupled steel line gives you the ultimate in performance and economy. See your Dresser Sales Engineer or write our Bradford Office for literature.

DRESSER

"FLEXIBLE-TIGHT"

COUPLINGS

Dresser Manufacturing Division, 59 Fisher Ave., Bradford, Pa. (One of the Dresser Industries). Warehouses: 1121 Rothwell St., Houston, Texas; 101 S. Bayshore Highway, South San Francisco, California. Sales Offices: New York, Philadelphia, Chicago, Houston, South San Francisco. In Canada: 629 Adelaide Street, W., Toronto, Ontario.

Another

NORDBERG FIRST

the Supair Thermal Engine

THE MOST OUTSTANDING DEVELOPMENT IN MODERN DIESEL DESIGN

featuring:

- ONE-THIRD MORE HORSEPOWER THAN CONVENTIONAL TURBO-CHARGED ENGINES
- MORE HORSEPOWER IN LESS SPACE
- MORE HORSEPOWER PER GALLON OF FUEL
- MORE HORSEPOWER HOURS PER GALLON OF LUBE OIL
- INCREASED THERMAL EFFICIENCY
- LESS HEAT LOSS TO WATER JACKETS
- LESS WEIGHT PER HORSEPOWER
- LOWER INSTALLATION COST
- LOWER OPERATING COST
- LOWER MAINTENANCE COST

NORDBERG MFG. CO.
Milwaukee 7, Wis.

NORDBERG
DIESEL ENGINES

NORDBERG
A DIVISION OF NORDBERG

Above or below ground — CAST IRON SOIL PIPE

What other available material has been tested by time?

Local health authorities have long recognized the importance of soil and waste disposal lines that will stand up under a beating year in, year out — decade after decade! **Cast iron soil pipe** is the plumbing material that has withstood the test of *generations. Can you pick up a plumbing code anywhere in the country that isn't built around cast iron soil pipe and fittings?*

Cast iron soil pipe outlasts any buildings, guards your community against dangers such as ground water pollution and escaping sewer gas. Moreover, you eliminate later street openings, trench excavations, backfill and repaving for a job that should have been done right in the first place.

Your plumbing code is protecting your community's health—and dollars—when it gives preference to **cast iron soil pipe** and fittings. It's the only way you can be *sure.*

CAST IRON SOIL PIPE INSTITUTE

Heurich Building, 1627 K. St. N.W., Washington 6, D. C.

This advertisement is sponsored by

CAST IRON SOIL PIPE INSTITUTE

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The American Brass & Iron Foundry
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Tyler Pipe & Foundry Company
Walker Machine & Foundry Corporation
Western Foundry Company
Williamstown Foundry Corporation

Fluoridation News

1945 1951

IN TEXAS, TOO—

CITY OF MARSHALL

MARSHALL, TEXAS

January 24th, 1951

Wallace & Tiernan Co. Inc.
1112 National City Bldg.
Dallas 1, Texas

Gentlemen:

The City of Marshall, Texas began fluoridation of its municipal water supply in the Spring of 1946, under the jurisdiction of the Texas State Health Department. Marshall was the first city in the State of Texas to use fluoridation.

In February 1950, we changed our method of fluoridation by feeding sodium fluoride with a Wallace & Tiernan Type MA Dry Chemical Feeder.

We have found the Wallace & Tiernan Type MA Feeder to be simple in operation, easy to adjust and maintain, and extremely accurate for feeding sodium fluoride. We have been able to hold the fluoride content of our treated water very constant by using this feeder.

We would be glad to recommend this feeder to any town considering adding fluorides to the public water supply.

Very truly yours,

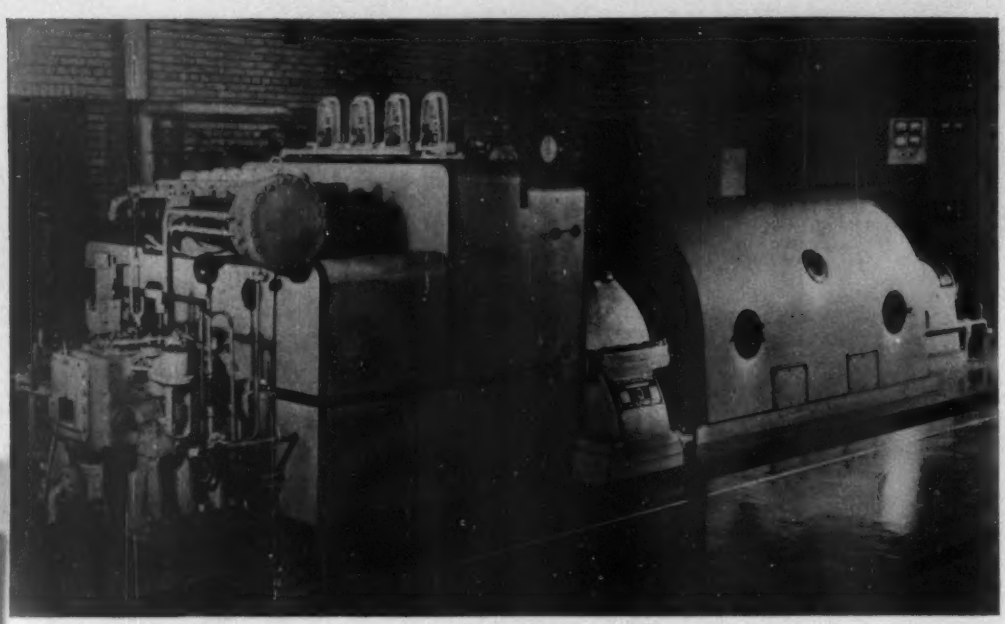
CITY OF MARSHALL

J.W. Schonhardt

J.W. SCHONHARDT
Water Superintendent

When *your* community is ready to look into fluoridation — and after you have consulted your State Department of Health — you'll find W&T Engineers ready and willing to help you.

WALLACE & TIERNAN
COMPANY, INC.
CHLORINE AND CHEMICAL CONTROL EQUIPMENT
NEWARK 1, NEW JERSEY : REPRESENTED IN PRINCIPAL CITIES



Story of an Economy Drive

How the Worthington Steam Turbine Pays Dividends for the City of Litchfield

What happened at Litchfield, Minnesota, is a clue to a most economical power plant operation.

Originally, the Litchfield municipal power plant consisted of low-pressure boilers, a steam engine and a small turbine-generator unit. The exhaust steam is sold for municipal heating.

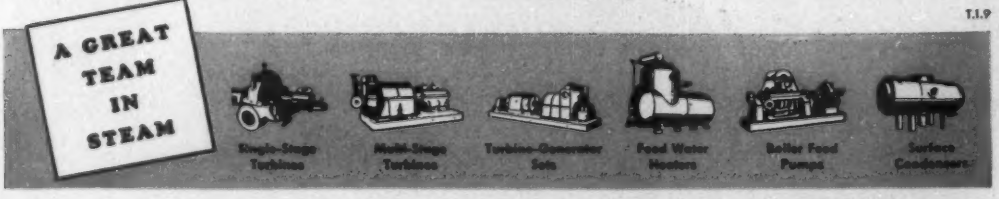
Next—a Diesel engine-driven generator was installed. The load grew, and finally, after a careful survey, it was decided to install a 3000-kw Worthington turbine generator and automatically extract steam for heating purposes.

Worthington builds steam turbines in all types and sizes—and turbine-generator sets up to 10,000-kw. For proof *there's more worth in Worthington*, call our nearest office or write to Worthington Pump and Machinery Corporation, Steam Turbine Division, Wellsville, New York.

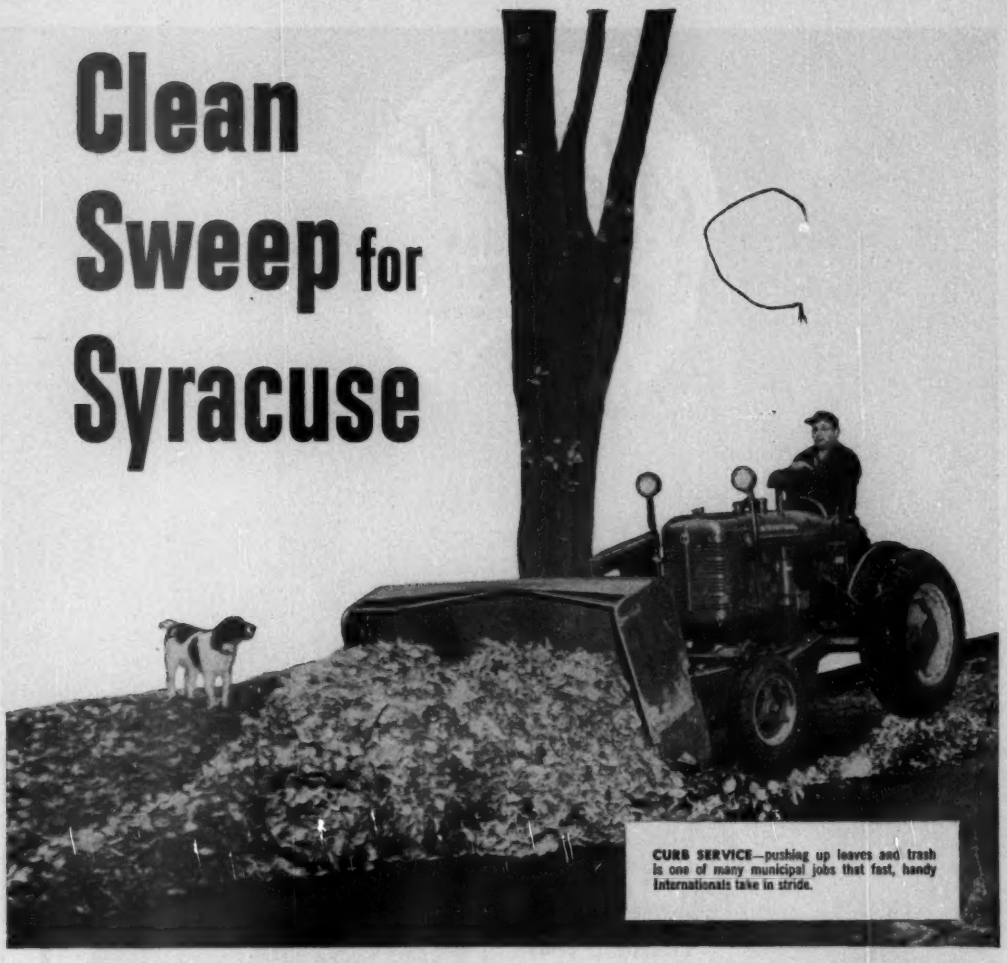
WORTHINGTON

STEAM TURBINE GENERATORS

T.1.9



Clean Sweep for Syracuse



CURB SERVICE—pushing up leaves and trash is one of many municipal jobs that fast, handy Internationals take in stride.

Handy Internationals serve Syracuse the year round

Sweepin' up the autumn leaves, dozin' off the winter snow, mowin' down the long summer grass... International Super A tractors serve the city of Syracuse, New York, all year long.

Street Department Equipment Superintendent John Zuhlka says, "These Internationals are the only tractors for a city to have... they do such a wonderful job on practically no upkeep!"

And tractor operator James Barry adds, "I like everything about the Super A! It's heavy on the rear wheels for good traction, it's easy to turn short around trees, and the hydraulic action is perfect!"

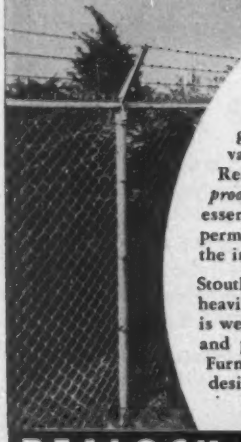
International tractors serve cities in dozens of different ways. They're easy to operate, rugged and powerful. And they're backed by the full-scale service facilities of your International Industrial Distributor. See him now.

INTERNATIONAL HARVESTER COMPANY
CHICAGO 1, ILLINOIS

INTERNATIONAL — POWER THAT PAYS

Metcalf
UNIFORM
FABRICS
Standard fabrics for over eighty years
Specify 386
12 to 18 oz. serges
Tropical weight for shirtings · 18 oz. whipcord for breeches
Also 20 and 30 oz. beavers and other standard fabrics
METCALF BROS. & CO.
45 EAST 17th STREET, NEW YORK CITY

REALOCK
is tamper-proof



Maximum protection for your grounds and property is assured when Realock Fence stands guard against trespassing, vandalism and other hazards. Realock Fence gives you *tamper-proof protection*—that's because essential fittings are designed to permit the removal of bolts from the inside only.

Stoutly constructed of steel wire, heavily galvanized, Realock Fence is weather-resistant, extra durable and practically maintenance-free. Furnished without barbed wire, if desired. Write for free estimate.

REALOCK FENCE CF&I

WICKWIRE SPENCER STEEL DIVISION 361 Delaware Ave., Buffalo 2, N.Y.
THE COLORADO FUEL & IRON CORP. Continental Oil Bldg., Denver 2, Col.
THE CALIFORNIA WIRE CLOTH CORP. 1080 - 19th Avenue, Oakland 6, California
BRANCHES & DISTRIBUTORS IN KEY CITIES EVERYWHERE

FLORLINE

STREET, SAFETY, PARKING LINES $97.50 F.O.B. Detroit

Efficiently Made at Walking Speed!

Communities from coast to coast are drastically cutting the maintenance costs of traffic and parking lines with FLORLINE. Often pays for itself on the first job! Note these exclusive Florline advantages:

1 man, 1 hand operation. No attachments. Gravity feed.

Makes curved, straight, continuous or skip lines . . . 2, 3 or 4 inches wide with interchangeable carriages.

Holds 1½ gals. paint, lacquer, whitewash. Cannot spill. Portable, efficient, speedy. Pays for itself quickly. Easy to clean, transport and store. FULLY GUARANTEED.

Write today for folder and list of users. Dept. MB.

H. C. SWEET CO.

12083 Woodbine Ave. Detroit 28, Michigan

New LOADER for Dump Trucks

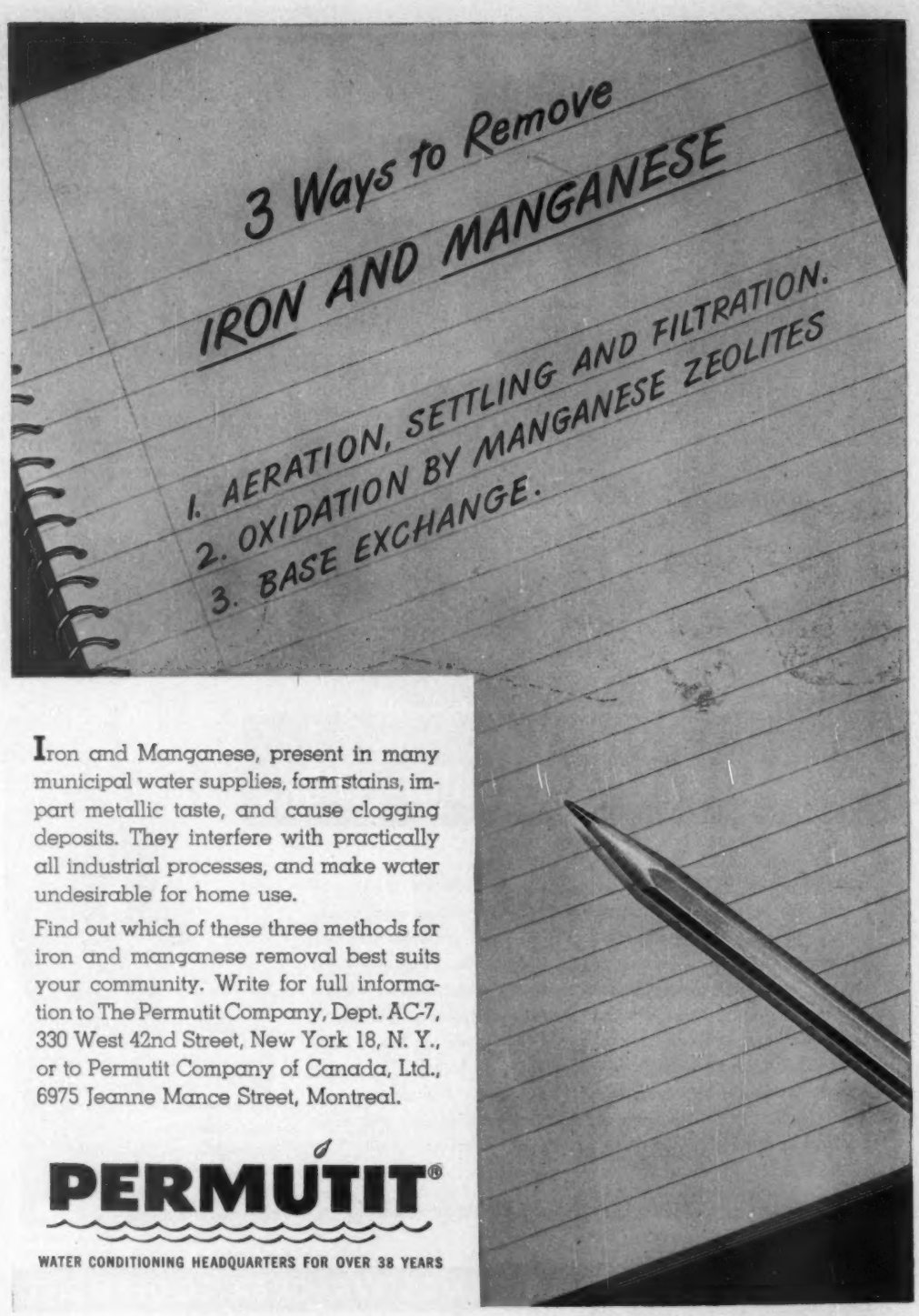
The new Holmes-Owen truck loader is today reducing the cost of many jobs performed by contractors, states, counties, municipalities, industrial and commercial firms. The versatile one-man operation of this unit permits the truck driver to do his own light digging, grading, loading and cleaning up without the need for additional help or the use of more costly equipment. Loading is handled faster, and more efficiently for the driver can lift ½ yard per bucket and load the average truck in only 4 minutes. The loader equipment can be installed on most any 1½ to 2½ ton standard dump truck. It is easy to operate and profitable to use. Ask your equipment dealer for details or write factory direct.

ERNEST HOLMES CO., Chattanooga, Tenn.

MANY *Profitable* USES

There's nothing like a truck loader for the handling of stock pile materials. Doing light grading, cleaning-up and salvage operation, work on streets, highways, and contracting jobs. Has many practical industrial and commercial uses.

Manufactured by the makers of **HOLMES WRECKER EQUIPMENT**


3 Ways to Remove
IRON AND MANGANESE
1. AERATION, SETTLING AND FILTRATION.
2. OXIDATION BY MANGANESE ZEOLITES
3. BASE EXCHANGE.

Iron and Manganese, present in many municipal water supplies, form stains, impart metallic taste, and cause clogging deposits. They interfere with practically all industrial processes, and make water undesirable for home use.

Find out which of these three methods for iron and manganese removal best suits your community. Write for full information to The Permutit Company, Dept. AC-7, 330 West 42nd Street, New York 18, N. Y., or to Permutit Company of Canada, Ltd., 6975 Jeanne Mance Street, Montreal.

PERMUTIT®

WATER CONDITIONING HEADQUARTERS FOR OVER 38 YEARS

NEW TYPE STRAIGHT READING METER REGISTER

MANY ADVANTAGES OFFERED

A great many water works men prefer the straight reading or oyclometer type of water meter register due to the ease and accuracy with which it can be read. But the design of straight readers produced in the past has been such that they have frequently proved troublesome and unreliable in service. All these difficulties have now been overcome according to engineers at Rockwell Manufacturing Company, by a revolutionary new register design.

Mechanical Features

In the new Rockwell straight reading register the number wheels are recessed to receive the pinions, thus making it impossible for the pinions to get out of line and bind. The wheels themselves are of heat proof plastic. These wheels are also impervious to corrosive attack. The numerals are impressed in black against a white background to provide good visibility. The dial plate is made of stainless steel with all indications permanently etched into the surface. This stainless steel plate will not chip, crack or discolor.

Easy to Reset

One of the important features of this register design is the ease with which the numerals can be returned to zero. This is desirable when reconditioned meters are put back in service to simplify record keeping during the life of the meter.

To reset the Rockwell register it is only necessary to remove a simple spring clip after which the pinion and number wheel shafts will easily slide through the brackets to return to the zero reading.

Large Red Test Hand

The Rockwell straight reading register is fitted with a large red center test hand that sweeps the entire outer circumference of the dial face. This large hand aids in calibrating meters and detecting small flows. It also may be used to demonstrate leaky fixtures to doubtful consumers.

Any domestic size Rockwell meter (Empire, Arctic or Tropic) can now be furnished with this new straight reading register upon specification. It is also available for parts replacement.

Pittsburgh disc meters are precision built to keep the performance standards that have been so carefully engineered into them. Step by step—from controlled casting . . . through accurate machining and expert fitting—to exacting tests—Pittsburgh disc meters are *made right to measure right!* In addition, the unit assembly of working parts assures a free running mechanism that years hence can be repaired or replaced with minimum trouble and expense. Get all the facts about Rockwell disc meters now. *Write for catalog.*

Rockwell

MANUFACTURING COMPANY

PITTSBURGH 8, PA.

Atlanta · Boston · Chicago · Columbus
Houston · Kansas City · Los Angeles · New York
Pittsburgh · San Francisco · Seattle · Tulsa

COMPARE O. S. C. SEPTIC TANK CLEANING

WITH OLD FASHIONED, UNSANITARY METHODS

When a Sanitary Service Operator puts a new Gorman-Rupp Odorless Sanitary Cleaner on the job these are the results:—

1. A disagreeable job becomes pleasant, easy work.
2. Unsanitary methods and unhealthy conditions eliminated. Septic tank cleaning with an O. S. C. unit complies with or exceeds health regulations and requirements. It banishes open tanks, diaphragm hand pumps, shovels and other makeshift equipment.
3. It does each job more thoroughly, in a fraction of the time previously required. For example, 500 gal. tanks are cleaned in 15 minutes, 1000 gal. tanks in 20 minutes.
4. It offers operators profit possibilities far in excess of income with present equipment and methods.
5. An O. S. C. unit has other profitable uses such as transporting water, emergency fire fighting, sprinkling, dewatering, etc.

Show this to Sanitary Service Operators in your community. For complete information write for Bulletin 7-ST-11.

GORMAN-RUPP'S NEW "MIDGET" 1½" PUMP

FASTEST, self-priming, most efficient pump for general use. Weighs but 62 lbs. -- pumps 5500 GPH -- self-primes up to 30 ft. -- non-clogging, sturdy. Gorman-Rupp builds a complete line of pumps from the "HANDY", delivering 8 GPM, to large capacity pumps which deliver as high as 125,000 GPH.

THE GORMAN-RUPP COMPANY

343 N. Bowman St. Mansfield, Ohio

Designing, building and erecting tanks to suit the individual requirements of industries and municipalities has been our business for nearly a century.

Write for latest Cole catalog—"TANK TALK"

R. D. COLE MFG. CO.

NEWNAN, GA. Established 1854

TANKS TOWERS CYLINDERS HOISTS

SWENSON SIDEWALK SAND SPREADER

A new fast way to cover icy walks with sand, ashes, cinders, salt, etc.

Can be used on road jobs all year 'round.

1-yard hopper

Write for circular.

SWENSON SPREADER & MFG. CO., Lindenwood, Ill.

"GUNITE" CONCRETE (Since 1915)

SPECIALISTS IN CEMENT GUN WORK

RESERVOIR LININGS (NEW AND OLD) • CONCRETE AND MASONRY REPAIRS • STEEL ENCASEMENT • FIREPROOFING • STEEL COAL BUNKER, STACK, HOPPER, AND PLATE LINING • SEWER LINING AND REPAIRING • CANAL, DITCH, AND DRAIN LINING.

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See our catalog in Sweet's

WARNING!

for AIR RAID, FIRE, SABOTAGE, DISASTER!

Federal sirens have been, and are now, the majority choice for air raid, fire and other warning purposes. During World War II, international committees visited American cities to study their air raid warning systems. It was not coincidence that those cities well equipped with Federal sirens were cited by these unbiased committees as having the finest and most comprehensive systems.

Experienced signal engineers know that the loudest signal is not the best signal for air raid warning. Volume is of little value without distribution. The more built up, the more congested an area, the less distribution of sound from any one unit regardless of its output. Every building, every tree, or every variation of topography, reflects, absorbs, or deflects sound. To offset these factors, as well as humidity, wind direction, local noise levels, etc., the sources of sound must be multiplied in number rather than increased in intensity.

Do not be misled. There are no "miracles"; no "wonder signals" to produce prodigious range at low cost. The laws of physics do not change. Despite claims that may be made to the contrary, no one inspired by World War III fears, has been able to completely outclass what Federal's years of engineering in audible signals is now offering.

Dollar for dollar, *smaller* signals will do a better, more uniform, more comprehensive and more dependable job than fewer large signals. In highly congested business districts, we recommend type D or type L sirens at street intersections. Less congested municipal areas can be covered well by 2 horse-power sirens located ½ to 1 mile apart. Suburban residental or semi-rural areas usually can be covered by larger sirens at greater intervals.

Federal General Alarm Sirens are the product of years of experiment and experience. The vertical design was selected because of its numerous and obvious advantages.

Vertical rotating parts, like a spinning top, provide natural balance with minimum friction and bearing wear. The motor, rotating but one properly designed rotor, can convert a greater portion of its energy into producing sound.

Since sound is produced at the ports of the rotor and stator, a vertical siren radiates its voice horizontally over 360° where it is most effective.

Federal Vertical Sirens are available in a variety of capacities from 2 to 7½ horsepower. Electrical services available vary widely, but sirens for generally available power supplies are carried in stock for prompt shipment.

Write today for Bulletin 95

FEDERAL ENTERPRISES, INC.

FORMERLY: FEDERAL ELECTRIC COMPANY, INC.

8756 SO. STATE STREET • CHICAGO 19, ILLINOIS

YOU GET

PPD*

PIN POINT DETECTION

ONLY WITH

GOLDAK EQUIPMENT

The name GOLDAK on electronic instruments eliminates guesswork . . . it's your assurance of Pin Point Detection at all times, in any kind of weather. Throughout the world, with companies who need instruments that are accurate and durable, first choice is GOLDAK

MODEL 620 BOX & VALVE LOCATOR

Pin Point Detection of Goldak's Model 620, saves you time and money, with immediate location of Buffalo Boxes, Valves, Covers and Buried Metals. Large areas surveyed in a few moments. Sharp, clear signals. Untiring operation, weighs only 6 lbs. Sturdily constructed, all-weather use. High quality parts assures maximum sensitivity, low operating and nominal replacement costs.

Write for FREE literature!

MODEL L46 SENIOR LEAK DETECTOR

Detect costly leaks in water and low viscosity fuel lines, in their exact position. Completely portable, simple to operate. Latest electronic improvements and high quality parts, assures unequalled performance. Save time and labor, eliminate costly waste leakage with Goldak Model L46.

The GOLDAK Company

Leading Makers of PIPE LOCATORS Since 1933

1544 W. GLENOAKS BLVD.

GLENDALE 1, CALIF.

CHEAPER THAN LAWSUITS!

FAIRBANKS-MORSE

GENERATING SETS

Power failure can start a lot of trouble for theater operators, hospitals, institutions, churches, schools, police, fire and other municipal departments. Injuries, loss of life, and property damage can lead to lawsuits and heavy damage claims.

Protect yourself. Install a Fairbanks-Morse Generating Set for quick power during emergencies. Available in a capacity to meet your needs. For details, see your local Fairbanks-Morse dealer, or mail coupon.

Fairbanks, Morse & Co.
Chicago 5, Ill.

We are interested in emergency power generating sets. Send details.

Name .....

Address .....

City ..... State .....

FAIRBANKS-MORSE,

a name worth remembering

GET THOSE WEED ROOTS!

GO TO THE ROOT OF YOUR WEED PROBLEM WITH THESE DOLGE PRODUCTS

DOLGE SS WEED-KILLER

Where no vegetation whatever is desired such as your parking places, walks and tennis courts. Penetrates deep down to plant roots and **kills.** Sterilizes the soil, preventing normal sprouting of wind-blown seeds. Weeding the thorough modern **chemical** way eliminates backbreaking toil and saves the cost of many labor-hours.

E.W.T. SELECTIVE WEED-KILLER (2-4-D)

The **efficient** way to control weeds on your fairways. Works its way down into the roots of brush, dandelion, plantain, poison ivy, ragweed, sumac and other obnoxious plants, **but does not injure most turf grasses.**

Please write for descriptive literature explaining how these tested DOLGE products can best be used for **your** weeding requirements.

dependable DOLGE

WESTPORT, CONNECTICUT

Hartford's famous Charter Oak which flourished for 200 years before it fell in 1856

Hartford, Connecticut, has a cast iron gas main in service that was installed more than a century ago. On the anniversary of its 100th service year a section of this main was uncovered for inspection and found to be in excellent condition. This main, installed in the days of horse-drawn vans and vehicles, is now serving under the pavement of one of Hartford's principal thoroughfares and withstanding the traffic shock imposed by modern buses and multi-ton trucks. Despite such unforeseen stresses, cast iron water and gas mains, installed over a century ago, are still serving in the streets of more than 30 cities in the United States and Canada.

United States Pipe and Foundry Co.,
General Offices, Burlington, N. J.
Plants and Sales Offices Throughout the U. S. A.

U.S. CAST IRON PIPE

NUMBER SEVEN OF A SERIES

SAVE MONEY

As More Than 5,000 Cities and Towns in 26 States Have Done with

AUTOMATIC VOTING MACHINES

Election Expenses are reduced because it has been proven that:

1. Voting Precincts may be consolidated
2. Fewer election officials are required, working shorter hours
3. No paper ballots need be printed
4. Expensive recounts are eliminated

Let us make an estimate of the savings possible in your community. Such a Survey will be made at no charge or obligation. If you are interested in a more efficient and economical election system—write—

AUTOMATIC VOTING MACHINE CORPORATION

JAMESTOWN, NEW YORK

Since 1898

Newly Improved
OK CHAMPION POWER SEWER CLEANER

DON'T LOSE Sewer Capacity

Clear your sewer lines regularly. Keep up full carrying capacity and you save money—in lower maintenance cost and avoiding costly backwash. Order OK Champion Power Sewer Cleaner equipment and your men remove roots, dirt and other obstructions from any storm or sanitary sewer in ONE operation. All men work above street level.

OK Champion cleaners are regularly clearing sewers all over the world. New improvements make them better than ever. Send for literature.

CHAMPION CORPORATION
Hammond, Indiana

GET FULL FACTS NOW!

CHAMPION CORPORATION, 4716 Sheffield Ave., Hammond, Ind.
Please send information on how the Improved OK Champion Power Sewer Cleaner cuts sewer cleaning costs.

NAME.....TITLE.....

ADDRESS.....

BOUGHT ANY FIRE HOSE . . . LATELY?

IF SO YOU'VE FOUND THAT IT IS

Expensive — Expendable — and in Short Supply

Don't gamble your $1.75 hose against damage from mildew and rot, protect it with CIRCUL-AIR, the electrically operated HOSE DRYER which circulates pre-warmed fresh air through coiled wet hose at the rate of 5 to 6 air changes per minute. CIRCUL-AIR is designed to lengthen hose life; improve the appearance and functional design of new fire houses and to save floor space and hard work. No other method is so fast—so easy to use—so economical.

These Towns . . . and 1,000 Others Protect Their Hose With Circul-Air

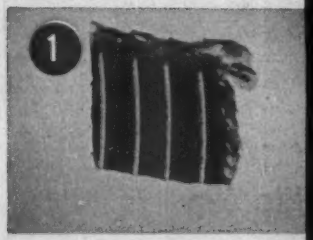
AUGUSTA, GA. — ALLENTOWN — AKRON — BOSTON — BURLINGTON CHICAGO — COLUMBIA, S. C. — ERIE — COLUMBUS — DETROIT GALVESTON — GREENSBORO — KANSAS CITY — MEMPHIS — LAKE CHARLES — NEWARK — LOUISVILLE — MILWAUKEE — OKLAHOMA CITY — OMAHA — PROVIDENCE — ROCHESTER — SEATTLE — SHREVEPORT — SANTA FE — TOLEDO — TWIN FALLS — TRENTON WINNIPEG — WHEELING — JACKSONVILLE — MIAMI — NEW BRITAIN — BUFFALO — GRAND RAPIDS — HOUSTON — PENSACOLA MERIDEN — YOUNGSTOWN — NEW HAVEN — BIRMINGHAM FITCHBURG — DAYTON — PHILADELPHIA — WASHINGTON, D. C.

NEW HOSE DRYING MANUAL
TELLS HOW TO DRY, STORE AND CONSERVE FIRE HOSE
Send for your copy today!

THE CIRCUL-AIR CORPORATION
575 E. Milwaukee Street
DETROIT 2 MICHIGAN

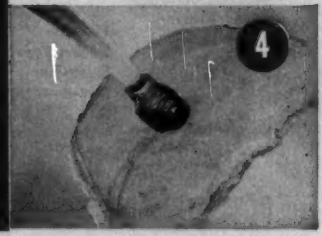
SERVICE CONNECTIONS are no problem in LOCK JOINT Reinforced Concrete CYLINDER PIPE

★ FITTINGS AND EQUIPMENT NECESSARY FOR MAKING SERVICE CONNECTIONS



HOW TO TAP

1. Remove concrete down to cylinder in area to be tapped.
2. Assemble fittings around bars of reinforcing cage, drawing gland down firmly so that gasket fits tightly against cylinder.
3. Mount tapping drill on corporation stop and tap.
4. When tap is completed, protect steel fittings with a cement mortar encasement.



Making a service connection under pressure in a Lock Joint Reinforced Concrete Cylinder Pipe is that simple.

Yet with these few steps a foolproof tap is always achieved. There can be no cross-threading, no loss of alignment and no damaging of the pipe with attendant costly shut-downs and repairs.

Lock Joint Pipe Company will be glad to furnish, at nominal cost, the few fittings necessary to make service connections from ¾" to 2" in diameter in any pressure pipe of Lock Joint design. Fittings are also available for making large diameter flanged connections—with ease under pressure. For illustrated instructions on tapping any type of Lock Joint Pressure Pipe, write for booklet, "Tapping Lock Joint Pressure Pipe Under Pressure."

LOCK JOINT PIPE COMPANY
Est. 1905
P. O. Box 269, East Orange, N. J.

PRESSURE PIPE PLANTS:
Wharton, N. J., Turner, Kan., Detroit, Mich.

BRANCH OFFICES:
Casper, Wyo. • Cheyenne, Wyo. • Denver, Col. • Kansas City, Mo. • Valley Park, Mo. Chicago, Ill. • Rock Island, Ill. • Wichita, Kan. • Kenilworth, N. J. • Hartford, Conn. Tucumcari, N. Mex. • Oklahoma City, Okla. Tulsa, Okla. • Beloit, Wis. • Hato Rey, P. R.

SCOPE OF SERVICES

Lock Joint Pipe Company specializes in the manufacture and installation of Reinforced Concrete Pressure Pipe for Water Supply Distribution Mains in a wide range of diameters as well as Concrete Pipes of all types for Sanitary Sewers, Storm Drains, Culverts and Subaqueous Lines.

ADJUSTABLE VALVE BOXES

3-piece Screw Type 5¼" Shaft

At the left is shown our **3-piece screw type** valve box, designed for modern-day street traffic. Below: Our **2-piece extra heavy sliding type** valve box, designed to cover the stuffing box and to slide instead of rotate, is meeting favor with water companies throughout the country.

5¼" Valve Box
(3-piece Screw Type)
Extension:

AAA—17" Stationary length
AA—1'10" to 2'4"
A—2'4" to 3'4"
B—3' to 4'
C—3'6" to 4'6"
CC—4' to 5'
D—3'6" to 5'6"
E—4' to 6'
F—5' to 7'
G—6' to 8'

2-piece Sliding Type 5¼" Shaft

(2-piece Sliding Type)
Extension:

5562-S—2' to 3'
5564-S—3' to 4'
5662-S—2'6" to 4'
5669-S—3' to 5'

EXTENSION SERVICE BOXES

2½-inch Shaft

89-A—1' to 1'8"
90-B—1'6" to 2'3"
91-C—1'9" to 2'9"
92-C—2' to 3'3"
92-D—3' to 3'6"
93-D—3' to 4'
93-E—3' to 4'6"
94-D—3'6" to 4'9"
94-E—3'6" to 5'
95-E—4' to 5'6"
100-E—4'6" to 6'
100-F—4'6" to 6'6"

2½ and 3-inch Shaft

3-inch Shaft Extension:

1½—1'6" to 2'4"
2—2' to 3'3"
3—2'8" to 4'
4—2'10" to 4'10"
5—3'6" to 5'6"
7—4' to 6'

2½" Shaft

Besides these boxes we manufacture a great many other patterns and are continually adding new designs to take care of special problems in the water and gas field.

Write for Circular

BUFFALO PIPE & FOUNDRY CORPORATION
Box 55, Station B, Buffalo 7, N. Y.

GEOPHONE locates leaks without digging

"Registered in U. S. Patent Office"

When the discs are placed on the ground (as pictured) the Globe Geophone detects by sound the exact location of leaks in water or steam pipes. Acclaimed for its accuracy, the Globe Geophone has become indispensable in Public Works Departments and Industrial Plants throughout the United States.

• MONEY-SAVING

You save the costly expense of extensive surveys, excavating and replacing. The inexpensive Globe Geophone pays for itself many times over in money saved.

• ACCURATE

Operating on the principle of the seismograph, the Globe Geophone is without question the most sensitive and reliable instrument for detecting underground leaks.

Complete Geophone outfit consists of connecting tubes, two Geophone discs, headpiece, and heavy leather-covered carrying case with shoulder strap..... **$85**

Pipe Phone $3.70
(Aquaphone)

Globe Phone Mfg. Corp. Reading, Mass., U. S. A., Dept. Y
Manufacturers of Geophone Since 1918

White Heating Kettles Have Fire-Proof Tops

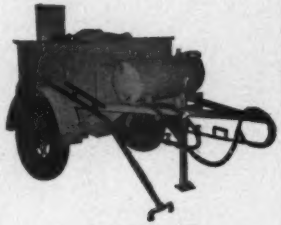
Cut-back and highly inflammable road repair material can be heated safely in White kettles. FIRE-PROOF top reduces fire hazard.

White asphalt and tar kettles are extensively used. They give long life and satisfaction.

Plain kettles or with hand or engine driven spray pumps for patching pavement. Thermometer, barrel hoist, warming hood extra. All oil burning. Semi-elliptic springs, pneumatic tires.

65, 110, 165, 220, 300 gallon capacities.

Model F-10 is oil jacketed, to heat elastic joint filler.



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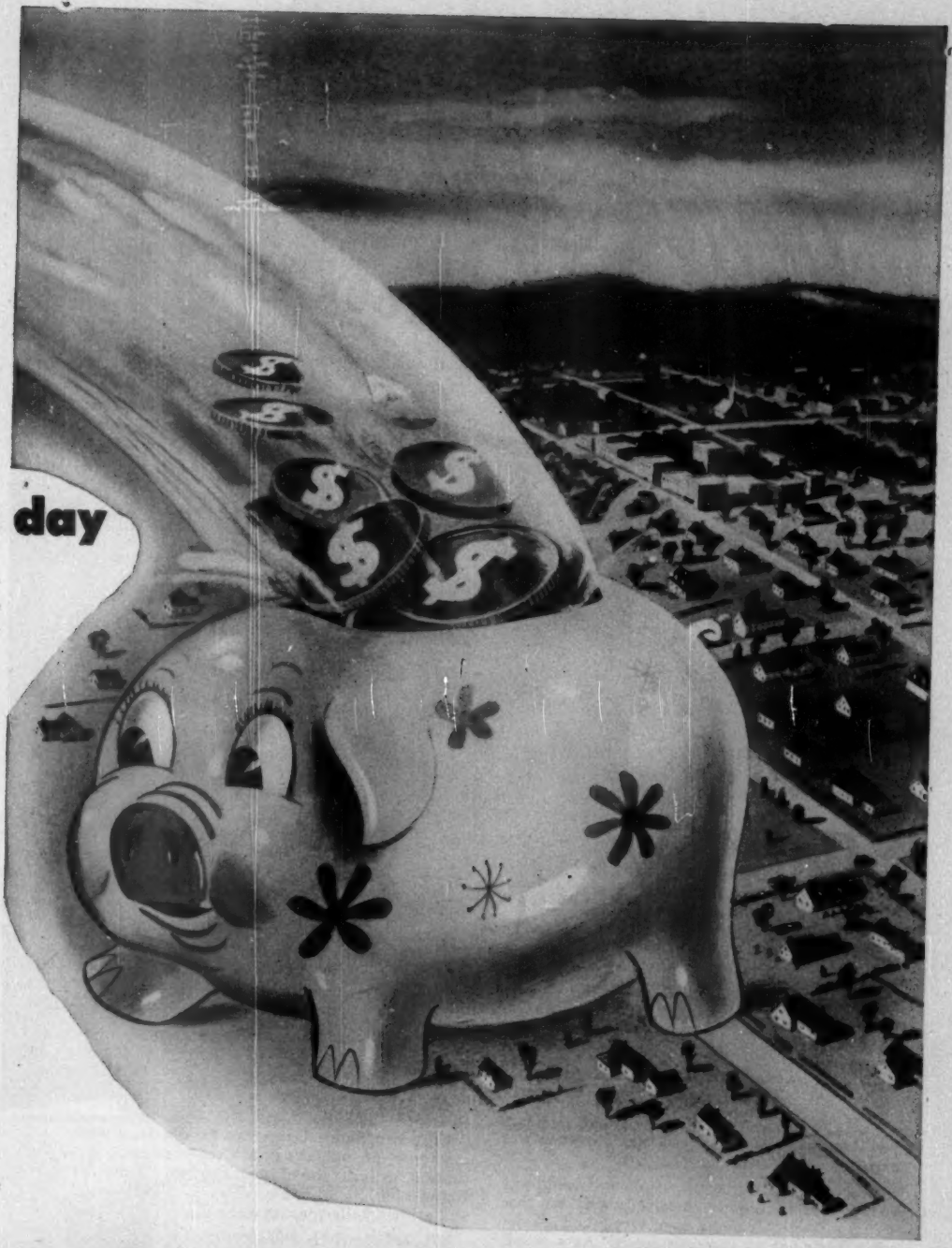

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DEMPSTER-DUMPSTER RUBBISH COLLECTION

What It Is-How Cities Use It To Cut Costs, Increase Cleanliness

Cities like Baltimore, Richmond, Nashville, Boston, Cincinnati, Birmingham — to name a few — are spotting big Dempster-Dumpster Containers at Schools, Hospitals, and Hotels . . . Apartment, Housing, Business and Market Areas for more efficient and sanitary collection of bulk rubbish. These containers are eliminating unsanitary trash cans, crates, boxes, rats, scattered trash, open trucks and with it making almost unbelievable savings.

Here is a brief explanation of this revolutionary method of bulk rubbish collection:

Operated by One Man

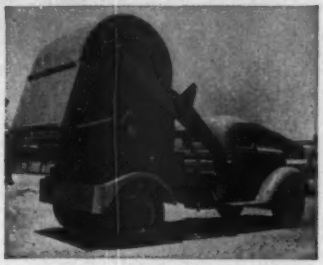
The Dempster-Dumpster System is, simply stated, one or more truck-mounted Dempster-Dumpsters, each with only one man, the driver, servicing any required number of detachable Dempster-Dumpster Containers, ranging in size up to 12 cu. yds. The Dempster-Dumpster makes scheduled calls at housing, market and business areas, hospitals, schools, etc., and picks up each pre-loaded container, hauls it to disposal area where contents are dumped automatically, then returns container to replace another pre-loaded container. This single truck - mounted Dempster - Dumpster services any number of containers, one after another.

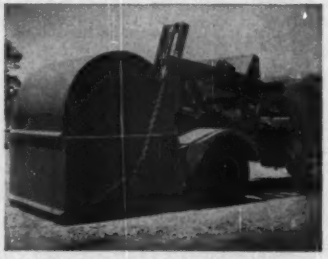
The cleanliness of the Dempster-Dumpster System is due to the completely closed steel containers. Trash and refuse cannot be scattered over streets and alleys by winds or scavengers. Dempster-Dumpster containers are fire-proof and rat-proof.

System Grows as Needed

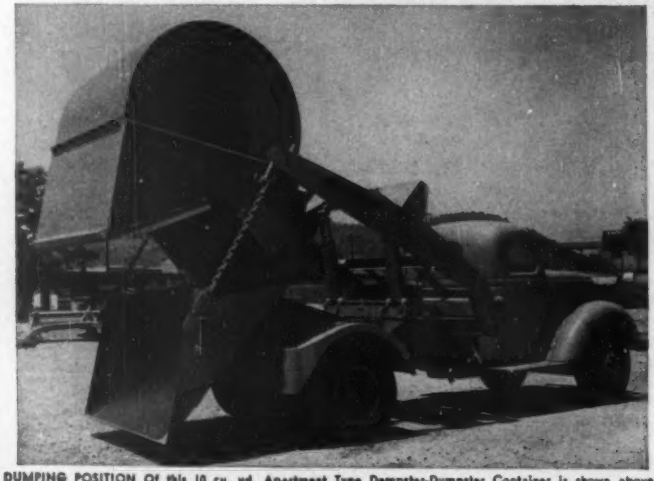
The City of Birmingham started out with one Dempster-Dumpster and 10 containers in 1938. Now Birmingham has 12 Dempster-Dumpsters servicing 204 containers. Richmond, Va., started out with two Dempster-Dumpsters and 13 containers in 1946. Today Richmond has six Dempster-Dumpsters servicing 196 containers. And so on down the line in city after city where the Dempster-Dumpster System is saving sanitation departments thousands of dollars annually. For example, when Richmond replaced the conventional open truck method of bulk rubbish collection in the business area with the Dempster-Dumpster System, it cut collection costs from $1.03 to .43 per cubic yard.

The pay-load capacity of the larger Dempster - Dumpster Containers is equal to or greater than conventional truck bodies. It is important to remember that containers are available in many different designs of every desired size. For instance, where moist or wet rubbish is a problem, a Dempster-Dumpster container is built to take care of it. And, bear in mind, regardless of the different designs or sizes of the containers you use at various points, one truck-mounted Dempster-Dumpster can service them all.





PICK UP AND HAULING OPERATIONS are shown in the two photos above. Driver backs Dempster-Dumpster up to Dempster-Dumpster Container, which has been pre-loaded by user, slips lifting chains onto lugs at each end of container, then, by hydraulic controls in the cab, lifts container into carrying position and drives to disposal area.



DUMPING POSITION Of this 10 cu. yd. Apartment Type Dempster-Dumpster Container is shown above. Its payload capacity is greater than the average conventional truck body. Container is placed in dumping position hydraulically and drop bottom section of container is lowered for dumping . . . all under complete control of driver in the cab.

The Dempster - Dumpster System triples man-hour efficiency . . . reduces truck investment, gas, oil, maintenance costs . . . improves "housekeeping" methods . . . reduces fire hazards . . . provides an easier, quicker, safer and more effective manner of handling bulk trash and refuse.

Upon request Dempster Brothers' engineers will be glad to prepare, at no cost to your city, a complete report for your particular municipal bulk rubbish collection requirements to determine the extent to which the Dempster - Dumpster System would justify its purchase and just what equipment would be required for efficient bulk rubbish disposal.

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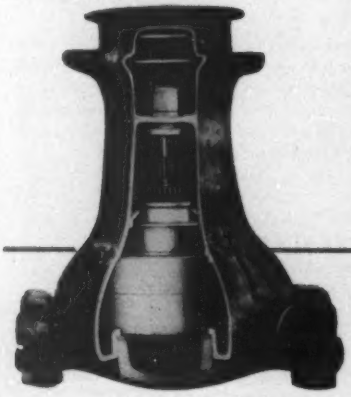

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BECAUSE OF TRIDENT INTERCHANGEABILITY
TRIDENT METERS WON'T BECOME
OBSOLETE

Is Local Government Getting

A SQUARE DEAL?

THE CONTROLLED MATERIALS PLAN which goes into effect this month focuses attention on these questions:

. . Does the defense emergency justify the extent to which local powers and prerogatives are being whittled away by controls from Washington?

Are federal officials deliberately ignoring fundamental democratic and home-rule principles?

Harried local officials can only "look at the record" and judge for themselves. The identity and validity of local government seems threatened today as never before in the history of this country.

Bills affecting municipal operation and status receive little attention from the Congress. And when action *is* proposed or taken by federal officials or the national legislature, its constructiveness is usually open to question. Consider:

—The continuing efforts to tax interest on municipal bonds.

—The recent Congressional proposal of a 3½% tax on the sale of electric energy by municipally owned utilities and the proposal to let O.P.S. control rates of municipal utilities and service charges.

—The proposed drastic cutbacks in public-housing construction. Also the fact that the experience and knowledge of local officials were not used by federal officials in proposing legislation for federal assistance for defense housing, community facilities, and services in defense-impacted areas.

—Drastic and too-early restrictions on community-recreation construction.

—The rebuff of municipal recommendations on the Federal Civil Defense Act (contributing to further Congressional and public apathy on CD).

—The recommendations to relax state and local regulations on truck sizes and weights during the "emergency" (further accelerating street and highway deterioration).

—The establishment of Voluntary Credit Restraint Committees, composed of investment bankers, to rule on borrowings for state- and local-government projects; with no recognition of local government by appointment of any public-finance or other municipal officials on these important committees.

—The requirement of National Production Authority approval for all private and public construction projects needing more than 25 tons of steel.

Were any local-government officials consulted with regard to these proposals? Do they receive from the National Production Authority recognition comparable to that given manufacturers of automobiles, television sets, or band instruments?

Very properly, industry and business executives have advised on every step of the mobilization. The defense production effort will greatly increase educational, highway, sanitation, and other needs in many cities. Yet, state and local governmental construction and supply requirements seem threatened with inadequate attention.

Several federal offices are acting as claimant agencies for segments of state and local government. But the experience of the last war seems to be forgotten, and because there is no central office to which they can go, state and local officials often get the "run-around" treatment in Washington, even though their problems may directly affect services and facilities for thousands of persons.

Has not the time come for local-government leaders to unite and challenge what many of them believe to be increasing federal disregard of local public needs?

The current mobilization effort is aimed at making the United States strong in military might; but, unless modified, may it not serve to seriously weaken and cripple the local public institutions which have been the nation's democratic bulwark?

Is the Administration "living so close to the forest it does not see the trees"? What do you think?

A Test of Municipal Reaction

THE staff of THE AMERICAN CITY has observed that it is becoming the exception rather than the rule for leaders of local-government organizations to be consulted by the Federal Government on policy matters and that, generally, in the mobilization effort, local-government problems and needs are not receiving adequate consideration from national officials.

To test municipal reaction on the seriousness of this particular situation, THE AMERICAN CITY asked several individuals and groups for their views.

At least two persons replying indicated that, in their opinion, there is no ideological struggle as such of federal versus local government. There is, they said, a definite lack of administrative wisdom and understanding on the part of many federal officials. This can be remedied if more of them realize that their position on a federal payroll does not endow them with omniscience, and that the complex nature of our society demands that they consult with a broad cross-section of local officials on problems which affect local government. Using the advice of local officials on mobilization problems which have a local orientation will speed our defense effort and lessen its cost.

Another pointed comment: There is nothing unique in federal disregard of local public needs. City problems have rarely received adequate consideration; everything they have achieved and secured has involved long, bitter struggles. With the attention of the Administration and the Congress necessarily centered on the world situation, local matters, even though they involve the functioning of democracy at its roots, will continue to get a minimum of attention—unless local leaders make a major, unified effort to alter the pattern.

The additional comments reproduced below indicate the concern which community leaders share about the basic problems posed by THE AMERICAN CITY. Action in line with some of the recommendations set forth should not be long delayed.

From WILLIAM F. DEVIN
Mayor, Seattle, Wash.
President
American Municipal Association

I read your proposed editorial and believe you are correct in raising the question of federal encroachment upon home-rule powers. . . .

It appears that there is a growing tendency in the United States to concentrate more powers in a centralized federal government, thereby taking from municipalities and local governments more and more authority. This is a dangerous trend, and if it is not recognized and presented to the people by their local officials, I do not know who else will do it. It is an insidious and creeping form of national disease, and it is able to survive and grow because it is easier for local officials to turn the solution of their problems over to the Federal Government than to do the job themselves. But once this is fully accomplished, municipal government will be only a name and a hollow shell.

I believe this question of strong centralized government versus strong municipal government is one of the biggest and most important issues confronting the American people today, and I think too little is being done about it.

Just recently I learned that the House of Representatives had passed a bill taxing municipal power utilities and that a bill has been introduced in Congress to regulate municipal power companies. These are but further evidences of the relentless effort of the national Congress to usurp municipal and local authority and thereby completely dominate and control from one central point every city, town, and hamlet in the nation. Such government is certainly abhorrent to my concept of American government.

You asked if I had recommendations for action and remedies. The 1951 Policy Statement of the American Municipal Association is replete with recommendations for more home rule, but they all seem to meet with but little response from state legislatures and the national Congress.

The present Federal Civil Defense bill does not even recognize cities but deals only with states, despite the fact that cities are the only possible targets for enemy bombing, and states as such are not interested in civil defense.

From CARL H. CHATTERS
Executive Director
American Municipal Association

The United States Congress, as well as many of the agencies of the Federal Government, have shown a complete disregard of municipal interests, in spite of the fact that our production for military and civilian purposes is concentrated in our cities and 60% of our people live in urban areas. The most shocking example has been the handling of civil defense. Under the law the Federal Civil Defense Administration could deal only with the states. This was true even though the actual work of civil defense must be done in the cities. I believe the abject failure of civil defense to date is due in part to this arrangement.

No action has been taken to date on providing facilities needed by communities whose local affairs have been completely disrupted by the defense program. Since these communities are in their present condition solely because of the impact of the national defense program, there is no possible excuse for the Federal Government's failure to help them.

The municipalities themselves are partly at fault for the unfortunate relations between the National Government and the municipalities. The Congress is afraid that cities will take unfair advantage of any opportunity to receive federal grants. Congress does not understand cities and, therefore, it fears them. However, if all of the people who are concerned with municipal government would unite, and if all of the municipal organizations would work together instead of each one selfishly guarding its own interests, then we might get somewhere. I have a plan for bringing all of the municipal organizations together and hope that such a plan may be carried out soon.

From ALBERT H. HALL
Executive Director
National Institute of Governmental Purchasing

Thank you for letting me see your proposed editorial. I agree with every word of it. Unhappily, everything in it is very true.

I do have a remedy to propose, but I do so with some trepidation. I am convinced that no one organization or no one group can successfully halt the trend which your editorial describes so clearly.

It occurs to me, therefore, that perhaps there should be called in Washington a one-day conference of all organizations of public agencies and public officials in the country. The conference could be called, for example, "The Washington Conference on Action in the Public Interest." That is merely a suggestion and I am sure that a better title could be found.

At the conclusion of such a one-day conference, a small drafting committee could prepare a summary of the thinking of the group and then take that summary personally to the President of the United States and to the majority and minority leaders of the Senate and the House of Representatives. I simply would not bother with anyone else because I do not think it would be productive.

From W. H. WISELY
Executive Secretary
Federation of Sewage and Industrial Wastes Associations

Federal Government encroachment into state- and local-government functions, which has taken place largely through financial subsidies, is certainly destroying the self-sufficiency of local-government units. Moreover, as you state so emphatically, it has become commonplace for federal regulations to be enacted on matters of local concern without consultation and guidance from those who are best informed regarding such problems.

It is my own feeling that this definitely undesirable trend has been fostered and

is nurtured by the increasing use of federal funds for state and local-governmental services. Such grants are merely palliative to local problems; they are not remedies. They discourage corrective thinking and action at the local level and encourage requests for more and more federal aid through "pork-barrel" tactics. There is no better time than the present to put an end to the local-government subsidies which have been with us during and since the great depression.

Our federal agencies appear to work on the premise that they must themselves solve all local problems. Their record in this respect has been anything but good. They would do much better to do what is necessary (and no more) to assist the lower levels of government to solve their own problems independently.

From JOSEPH PRENDERGAST
Executive Director
National Recreation Association

I can comment on your editorial, of course, only from the point of view of local public park and recreation services. As you know, the National Recreation Association has a close working relationship with some 1,600 local governments in connection with their park and recreation problems.

On October 27, 1950, the National Production Authority issued its Order M-4 restricting the construction of new buildings for amusement, recreational, or entertainment purposes.

The Order stated that the construction prohibited was of a type which did not further the defense effort, either directly or indirectly, and did not increase the nation's productive capacity.

It is interesting to note that the Order itself stated that "in the formulation of this order there has been consultation with a representative group from the building and construction industry including trade associations' representatives, and consideration has been given to their recommendations."

It is also interesting to note that the NPA did *not* consult with any representative group of local public officials responsible for the provision of community recreation or with any representative associations of such officials such as the National Recreation Association, the American Recreation Society, or the American Institute of Park Executives; and no consideration was given to their views or recommendations.

As a result, NPA arrived at the erroneous assumption that there was no valid distinction between amusement, entertainment, and recreation—and drew the obviously incorrect conclusion that there is no distinction, so far as their contribution to the defense effort is concerned, between such things as commercial race-tracks, slot machines, and night clubs, and such community facilities as neighborhood recreation centers, athletic-field structures, and swimming pools, in localities affected by the defense program.

Such assumptions and conclusions are entirely contrary to our national experience. Recreation has values for the individual, the community, and the nation of great importance in a period of national emergency. Adequate recreation and park facilities contribute greatly to the welfare and morale of military personnel, industrial workers, and the general population in times of stress and strain. Any consultation with local public officials or their representatives would have disclosed these facts to the National Production Authority in advance of the promulgation of its order and would have avoided the need for constant amendment and interpretation after its issuance.

Since the beginning of the emergency this Association has been trying to bring the local public officials concerned with recreation into close relationship with the federal officials whose policies and administrative acts infringe upon local recreation matters. We have had excellent results with some federal officials, and indifferent success with others; absolutely no progress has been made with a few. But this should be a two-way process and the burden of initiating a working relationship between federal and local public officials, if it may be said to rest anywhere, rests on the shoulders of the federal officials.

From CHARLES S. RHYNE
General Counsel
National Institute of Municipal Law Officers

I certainly think that local government is being threatened by the octopus of increasing federal centralized controls. Your statement that the public apathy in civil defense can be traced directly to a major basic defect in the Federal Civil Defense Act is quite true. The basic defect I refer to is the funneling of everything through state governments rather than sending it directly to the city governments when the city governments are those primarily concerned. Cities are the primary bomb targets and the nerve centers of war production. Rurally dominated state legislatures simply will not get excited about civil defense.

It is certainly true that the suggestions put forward constantly by organizations of local officials, such as our own, are not meeting the favorable response they once met here in Washington from the Congress and the National Administration. The primary reason for this seems to be that, under the urge of a national emergency, it is claimed that it is necessary to centralize power in the Federal Government. I believe that such centralization will destroy the very thing which made the United States great, i.e., strong local governments where new ideas are tested and developed on the firing line where they affect the people most. If all of our actions are to be governed from a centralized point, the experimentation which is essential in a democratic government will soon be gone, and we shall be robots responding to button-pushing from Washington by an all-powerful dictator with all the decadence which comes from centralized thought control.

I think your editorial will serve a good purpose and do hope that you will publish it soon.

From MILTON ROSEN
Commissioner of Public Works
St. Paul, Minn.
and
President
American Public Works Association

It is my opinion that the thoughts expressed in your editorial are very well taken. I am sure the public-works officials throughout the nation can subscribe to these sentiments 100%.

City officials are not being consulted on defense emergency measures. They do not receive recognition at all comparable even to that given manufacturers of luxury articles. The recommendation that state and local regulations of trunk highways be relaxed during the emergency will, if followed, destroy many miles of streets and highway pavements which have not been restored since the maintenance restrictions of World War II.

While undoubtedly large production is being stimulated by these regulations, the housekeeping items with which public-works officials are concerned, such as pavement maintenance, housing, sanitation, and recreation, are being relegated to a minor position.

I have no criticism of the local office of the Bureau of Public Roads or the District Office of the Corps of Engineers, both of which are restricted in their activities in much the same manner as the local governments.

We, here in St. Paul, are in a difficult spot. We prepared a 10-year program of construction of streets, sewers, and other essential public-works needs, but there was a school-building program that had to be sponsored by a vote of the people, and we laid aside our desire for the much-needed improvements until after the Department of Education matter had been passed on by the people.

Now that we are ready to place our public-works program before the public for their consideration, we find we are hamstrung by governmental regulations. In this progressive city, due to scarcity of materials, war conditions, and lack of funds, we have had but one mile of new paving in the city in the past 15 years, and I am very frank in saying that our streets are so disintegrated that if they are not given immediate attention, we will find the safety of our people in jeopardy.

I think every public official is cognizant of the seriousness of our present national situation, however, and we are all willing to go all out to do our part. I do not believe that the restrictions which have been placed on public works can be justified at this time.

Highway Construction

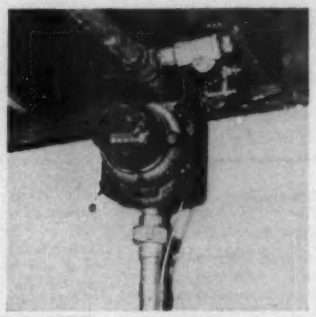
POWER to authorize construction of highway projects under National Production Authority Order M-4 has been delegated by Department of Commerce Secretary Charles Sawyer to the Bureau of Public Roads. The authority delegated relates to all construction maintenance of rural and urban highways, streets, highway bridges and tunnels, toll-road facilities, etc., regardless of financing.

Batavia, N. Y.

Replaces Customer-Owned Water Meters

Meter service charges makes possible a $90,000 replacement program

Here is a new meter, which is installed in a horizontal position by a Mueller copper water-meter yoke.



This is one of the old meters. Note the vertical mounting; easy to read, but not easy for the meter to operate.

BATAVIA, with a population of 18,000, is the oldest city in the western part of New York State. It was the first to have water and sewerage facilities, and has used water meters for more than 30 years. The problem of replacement of worn-out meters over 30 years of age was a difficult one, especially in the situation where the property owner, rather than the Department of Water, owns the meter. A study of the meter situation showed that nearly one-half of the 4,300 meters were over 30 years old, and that more than three-quarters of them were over 20 years old. More than 100 were stopping each year and the loss in registration in many instances

By NELSON M. FULLER
Superintendent of Water Supply
Batavia, N. Y.

WHEREAS, the purchase and installation of water meters in the City of Batavia has always been a responsibility of the property owner, and

WHEREAS, nearly one-half of the meters in service are over 20 years old and are worn out and should be replaced, and

WHEREAS, asking the property owner to purchase a new meter outright to replace a worn-out meter, because of the expense involved (usually about $20), is a cause of considerable financial hardship, and

WHEREAS, a better service to the community could be performed by the replacement and repair of the water meters by the Water Commission, and

WHEREAS, an annual service charge for the replacement and repair of the water meters of $2 per year assessed on the basis of 50 cents per quarter per meter will provide sufficient funds for the replacement of about 400 meters per year, the approximate number which become completely worn out and not running during the year, and

WHEREAS, the Department is losing a very appreciable source of revenue due to defective or stopped meters which results in an unequitable distribution of the cost of water service among the other metered water users,

NOW, THEREFORE, BE IT RESOLVED, that the Water Commission take over the responsibility of replacing and repair of the household meters defined as the standard ⅝-inch pipe-size water meter, and

BE IT FURTHER RESOLVED, with the exceptions stated below, that a quarterly charge of 50 cents be assessed with every water bill for the above service.

Exception No. 1

That any person who has purchased a water meter within the last five years be exempt from such assessment until said meter is five years old.

Exception No. 2

That in case a property owner desires to purchase a meter outright, no charge for service be assessed for five years.

AND, BE IT FURTHER RESOLVED, that in cases where negligence on the part of the property owner results in a meter impaired by hot water, freezing or any other external damage, the expense of repair or replacement shall be borne by the property owner.

BE IT FURTHER RESOLVED, that the Water Commission shall determine under its existing powers with respect to metering when any meter shall be replaced or repaired.

AND, BE IT FURTHER RESOLVED, that any additional expense involved in the replacement or repair of a water meter, such as replacement of corroded piping or cellar stop, shall be made a separate charge to the consumer in the same manner as this expense has always been charged.

By this resolution, Batavia implemented its unusual meter-replacement program.

was so great that known large users of water were only paying minimum rates.

The Department's attempts to cause the property owners to purchase new meters met with severe resistance and worse public relations.

The Board of Water Commissioners finally developed a satisfactory solution of replacement or repairs through the establishment of a quarterly service charge of 50 cents for repair or replacement to all consumers who have a meter over five years old—the Commission reserving the right to determine what meters require repair or replacement.

The money collected under the plan amounts to more than $1,700 per quarter. Since the plan has been in operation, $9,427 has been collected and 500 meters replaced. The plan is flexible enough so that if a consumer prefers to purchase a new meter outright, he may do so without the service charge up to five years. After that, the service charge of 50 cents a quarter is made against future repairs or replacements of his meter.

Under the new plan, it is expected that within a 10-year period all the old meters will have been replaced and the serviceable ones repaired. The plan provides for the perpetual maintenance of the meters in perfect operating condition with a minimum of labor and bookkeeping expense. New meter-sales efforts are eliminated, and meter-repair bookkeeping and billing details reduced to a minimum. The deposit nuisance has been eliminated also. The plan developed several favorable aspects not previously anticipated:

(1) The new meters, being accurate in their registration, increased the revenue appreciably.

(2) The higher bills, recorded in instances where water was being wasted through leaking fixtures, caused the owners to repair them in the following quarter.

(3) The net result has been reflected in lower pumpage (50,000 gallons per day).

(4) Water loss has dropped from 24% to less than 10%.

(5) In replacing the old meters, we found a large number of instances where the connecting service pipe was so badly corroded that a break was due at any time. Correcting this condition while replacing the meter has no doubt saved many owners serious loss from a catastrophe as well as an emergency call to the department. Also, the curb stop generally gets some attention at the time of the meter replacement. If it is filled with soil or the cover is lost, it is put in operating condition.

(6) The plan has had an educational feature causing the users to be more water conscious and appreciative of what they get for their money.

The meter-repair and replacement program is only one phase of a rehabilitation program, undertaken by the Commission, of a water system which had been allowed to depreciate over the years.

These badly corroded pipes were taken from house service lines in the vicinity of old meters which were replaced under the present program. Correction of these conditions has prevented serious accidents and emergency calls.

With the exception of a very few other types of meters, the Batavia Water System has been served for more than 30 years with meters manufactured by the Buffalo Meter Company.

Pumped Water Storage Gives Electric Power Reserve

PUMPED storage consists of storing water by pumping into specially constructed or natural reservoirs for the purpose of using this water at a suitable time for the generation of power. The true pumped-storage project takes water from a river, lake, or reservoir, and pumps it to a reservoir at greater height. At allotted times the water is allowed to flow back through a turbine which generates power.

In other words, the project acts as a huge storage battery for storing power. Compared with electrical storage batteries or other types of storage accumulators the pumped storage of water has greater flexibility and is probably more economical.

Its advantages were summarized recently by W. J. Rheingans, Frank Jaski, and Herman Roth of the Allis-Chalmers Manufacturing Company, at the recent Midwest Power Conference held in Chicago. They made the following points:

1. It utilizes surplus power available during nighttime and on Sundays or other off-peak periods, and transforms it into more valuable daytime peak energy.

2. It assists in running thermal stations at continuous uniform load.

3. It adds to the reserve capacity of the system.

The idea of pump storage is by no means new, since installations in Switzerland date as far back as 1892.

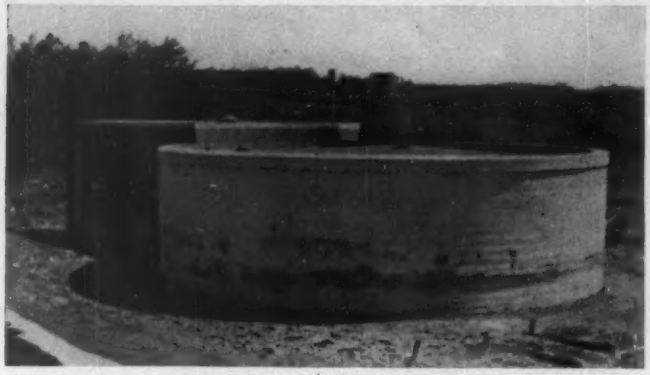
Recently there has been considerable research work done by Allis-Chalmers on reversible turbine-pump units for use in pumped storage projects where a single-runner hydraulic unit operates in one direction as a pump and in another direction as a turbine. In this case, the hydraulic unit is connected to a single electrical unit which serves as a motor for pump operation and a generator for the turbine operation. Model tests have shown that this type of unit would give about the same efficiency when operating in one direction as a pump, as the efficiency obtained when operating in the opposite direction as a turbine. Maximum efficiencies compare favorably with the maximum efficiences of standard pumps and turbines.

This reversible pump-turbine makes the use of pumped storage in the United States attractive, because it tends to reduce the over-all installation costs. There are several reversible pump-turbines of this type in operation, and additional units are in the process of being manufactured at the present time.

Hickory, N. C., Meets

New sewage-treatment plant provides treatment by trickling filter to insure thorough purification and remove pollution from Falling Creek River

By A. B. UZZLE, JR.
Superintendent of Public Works
Hickory, N. C.



The plant has one sludge digester, 35 feet in diameter, with a 16-foot sidewall depth of sludge. The control building is behind the tank, at the left.

WHEN a city's sewage amounts to an average of one-third the flow in the stream receiving the sewage, then the purification of that sewage must be thorough if the stream is not to become a health menace and a nuisance to the citizens.

It was in this position that Hickory, N. C., found itself during the post-war period. Added industry and new homes had created the problem, and had overloaded our plants so that more facilities were badly needed.

The city has two major sewer-treatment plants and three minor ones. All are inspected periodically by the engineers of the State Board of Health, and are operated in accordance with their recommendations and specifications.

Old Plant Could Not Be Enlarged

The plant at the Falling Creek site was particularly overloaded and the original design made subsequent enlargements impractical. This plant had to receive, in addition to domestic wastes, sewage from two hosiery mills and a dye company, whose wastes total about 30,000 gallons per day.

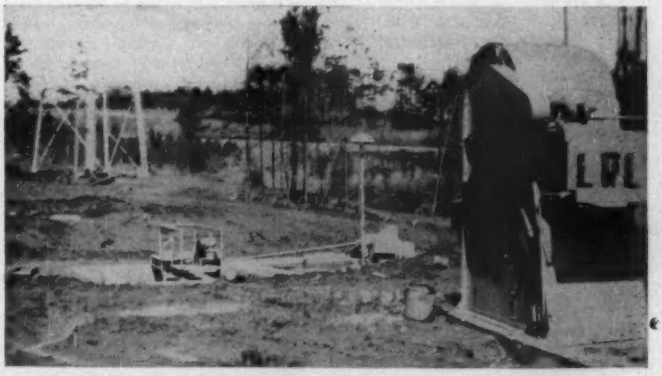
To build this plant, the city called on the services of William C. Olsen, consulting engineer, of Raleigh, N. C. The design his engineers selected called for screening, grit removal, primary settling, trickling filters, secondary settling, and separate sludge digestion. For more thorough treatment, the plant can add alum, lime, or chlorine if needed. The plant is designed for 500,000 gallons per day. Its capacity can be increased to 1,000,000 gallons per day, if desired, without undue construction changes.

To provide primary screening, the plant uses an automatically operated Chain Belt bar screen. The operation of the screen is governed by a time clock set to anticipate the varying loads that normally can be expected. The operation is also governed by float control and manually operated switches.

The screened sewage then passes through a Dorr Detritor that removes and washes sand and other grit. This material is then hauled away for burial. The Detritor is designed on the basis of 25 square feet of area per million gallons per day.

The sewage then goes to the Dorrco Clariflocculator. This unit is 30 feet in diameter and has a sidewall depth of 8½ feet. It is designed to furnish 30 minutes of detention time in the flocculator unit at the center, and is also equipped with a blower and two air outlets for blowing scum to an outlet. The settling compartment furnishes two hours of retention based on the design flow of 500,000 gpd.

The clarified sewage, free from settleable solids, then goes to the trickling filter. This has an average depth of stone of 5 feet and is equipped with a Dorrco rotary distributor. The arms of the distributor rotate twice every 1½ minutes. The filter is designed for high-rate use and can treat the sewage



At the right is the automatically operated bar screen. In addition to the day-and-night clock operation, there are float-control and manual switches.

Sewage Pollution Load

at the design rate of a 500,000-gpd flow plus 500,000 gpd of recirculated settled sewage from the secondary clarifier, plus 108,000 gpd of settled sewage returned from the secondary clarifier to the influent of the primary clarifier.

The sewage leaving the trickling filter passes to the final clarifier. This is a Dorrco Sifeed unit, 30 feet in diameter with a sidewall depth of 8 feet, and furnishes two hours' retention of sewage. The effluent from the clarifier goes into Falling Creek in a relatively pure, untroubled condition.

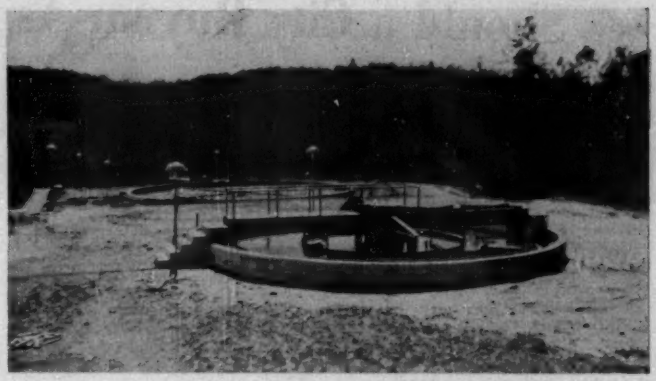
Digesters

The sludge from the primary clarifier is transferred by a Marlow sludge pump to a covered digester 35 feet in diameter with a 16-foot sidewall depth of sludge. The tank is completely equipped with Pacific Flush Tank heat-exchanger equipment to insure that the sludge is in optimum condition before entering the tank. The heat-exchanger unit has a heating capacity of 100,000 BTU per hour, plus 50,000 BTU for hot water that heats the digester-control building. The heater operates either with sludge gas or fuel oil. The tank is also equipped with P.F.T. supernatant selector and sampler. The digestion tank and control building are built so that an additional digester can be erected. The digested sludge is dewatered on open drying beds. There are two of these, each 20 feet by 90 feet, with 12 inches of sand underlain by crushed stone and 8-inch split tile.

Builders

The plant was constructed by the Sanford Construction Company, Sanford, N. C., and the Haynes Electrical Company, Asheville, N. C.

Sewage plants are often called "exposial plants" by some operators because they do expose the habits of the contributing population. By other operators they are called "explosion plants," and there is a good basis for this name if proper safeguards are not observed, since the digester gas, when mixed with air, becomes a powerful explosive. The Federation of Sewage Works *Manual of Practice, No.* 1, lists accidents that have occurred because of these explosions, and makes recommendations on how to avoid such difficulties. Our operation is in strict accordance with these recommendations, so the dangerous conditions should not occur.



In the foreground is the Clariflocculator; behind it is the trickling filter.

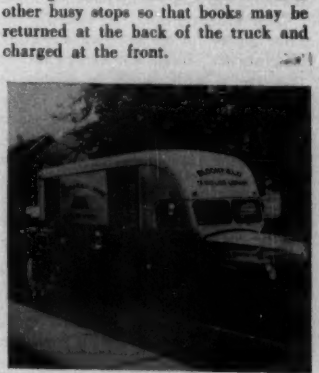
Bloomfield's New Bookmobile

By HELENE SCHERFF TAYLOR
Public Relations Librarian
Bloomfield, N. J.

SINCE Mohammed isn't always able to come to the mountain, the mountain is coming to Mohammed—on regularly scheduled runs. This was our thought last October as the first bookmobile to serve a town in New Jersey began its year-round service to the outlying sections of Bloomfield. A useful "mountain" it is indeed, with about 1,200 books and magazines in the golden and green body on the Studebaker chassis. Its outside legend proclaims "Bloomfield Public Library—Traveling Branch—Provides Reading for Everybody." Townspeople have become more library conscious since the bookmobile's appearance.

The body of Bloomfield's Traveling Branch was ordered in the spring of 1950 from the Gerstenslager Company, of Wooster, Ohio, for $4,878. It is 14 feet long inside and 6 feet 6 inches high. The ton-and-a-half Studebaker chassis was purchased through the local agent. It cost $1,451. A generator supplies electricity for the extra heater and fluorescent lights. There is an electrical outlet outside the bookmobile which can be connected with any regular 110-volt circuit. The total height of the bookmobile from the ground to the top is 10 feet 6 inches. While the extra height makes it possible for a tall person to walk inside comfortably and also helps the circulation of air, it adds to the difficulty of finding a garage with a doorway high enough to accommodate the truck. Bloomfield's bookmobile is kept free of charge in the garage of a local dairy. Approximate cost of operation for nine months' service (exclusive of salaries) has been $30 a month.

The interior of the Traveling Branch is fitted with shelves sloping at a 15° angle. There is a special section for children's picture books, and a small, carefully selected ready-reference collection. The desk for dating books, the supply drawers, and the under-counter shelves are in back of the driver's seat. Both front seats swivel so they may be used for charging and discharging books at the regular stops. A small folding table is used at schools and at other busy stops so that books may be returned at the back of the truck and charged at the front.



When

Should a City Buy an Asphalt Plant?

By JAMES L. MacLEOD
City Engineer
Bangor, Maine

THREE factors must be considered before a municipality should purchase an asphalt plant. I have listed these as (1) the annual amount of paving needed, (2) the availability of suitable aggregates, and (3) the availability of experienced and competent personnel.

If a city has logical and useful answers to these considerations and enough money to make the purchase, then it is in the market. Size of the city is not a vital consideration. Some communities with as few as 8,000 inhabitants have made this investment.

Let us take each subject separately. Problem No. 1—the amount of paving to be done each year—of course is of local concern. If there is a considerable amount of old concrete paving which is beginning to deteriorate, a hot asphalt surface is the answer. It would seem to me that a program of paving at least 10,000 square yards in any one year should be the minimum. This would amount to seven or eight city blocks, and would require about 1,600 tons of paving material put down on an average of 3 inches thick.

Sidewalk Work

In addition to the paving program, a mixing plant can be used for preparing hot asphalt for sidewalk work and pre-mixed patching materials, more commonly known as cold patch. The binder for these cold mixes may be asphalt emulsion, asphalt cutback, or the various grades of tar.

In recent years, we have used MC-3 asphalt cutback for our summer patching work, and a blend of RT-5 and RT-7 for fall and spring patching work.

Now you may ask, why not use the same binder for all patching material? The answer, from our experience, is that the mixture made from asphalt cutback sets up more quickly in the hot weather and does not soften up or push under the summer temperatures, and therefore does a better job. In the spring and fall, the asphalt mix does not seem to stand the rains and wet conditions and strips badly, whereas the tar mix will withstand these unfavorable conditions.

The complete plant, which is owned and operated by the City of Bangor, cost in the neighborhood of $25,000, and the capacity of this plant is on the low side as compared to modern plants. Our plant is rated at 20 to 30 tons per hour of hot asphalt paving. In addition to the initial cost of the plant, the upkeep and operation is considerable.

Plant Types

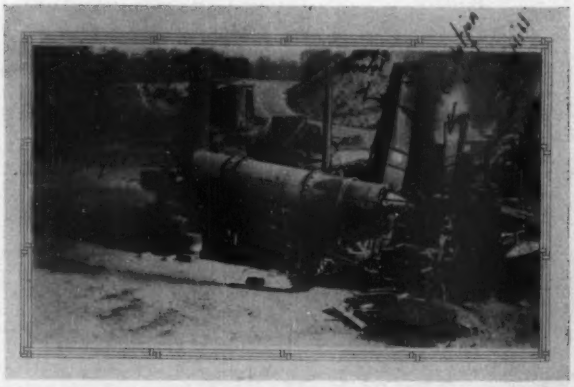
There are various types and sizes of hot asphalt mixing plants on the market, the most common being the so-called batch type, whereby all your aggregates and binder are weighed before they are discharged into the pugmill for mixing. However, the plant at Bangor is known as the continuous-flow mixing type.

As part of the plant operation, it is necessary to have an asphalt storage tank of sufficient capacity to maintain asphalt on hand at all times. It is also necessary to have boilers of sufficient size to provide steam for heating the asphalt, for operating the dryer, and for heating the steam jackets around the asphalt pump and the pugmill mixer. It is also necessary to have equipment to charge the storage bins for the operation of this plant.

After the plant is set up, a minimum in personnel is required for the operation of the plant, and this number, of course, varies with the type of mixing plant in use. However, a minimum staff will be five. We require two firemen for the boiler—one for daytime, and one for nighttime, as the asphalt cement must be kept hot at all times after operation has started. We also need at least two men to operate the mixing plant, and a man at the storage bins. Then there is the problem of transporting the asphalt from the car to the storage tanks. This, of course, is normally handled in a distributor built for that purpose. Some suppliers are equipped to deliver by tank-truck direct to the storage tank, and, if necessary, small quantities of asphalt can be purchased in the drums. This last method is a slow process and an expensive one.

Use Local Aggregates

Problem No. 2, the availability of suitable aggregates, is very important. The State of Maine has rigid specifications on these aggregates. Asphalt-paving engineers more or less agree that the stone used for asphalt paving should be a completely fractured type if the surface course of the paving is to stand up. I know from definite experience that paving put down with crushed screened gravel will not last. This means then that the products from a crusher plant must be available, or this type of aggregate must be shipped in. If shipped in, additional costs are



This Barber-Greene plant has served Bangor, Maine, for more than 10 years. In the photograph its more important parts are identified.

involved in handling this crushed rock from the car to the storage bin. It is also a known fact that fines must be in your mixture, and this fine material must pass the 200-mesh sieve. This is not a serious problem, since limestone dust is readily available and can be introduced into the mix without too much trouble. In Bangor we are fortunate that our own crusher plant supplies sufficient quantities of crusher dust from our Gyratory Crusher to give us the needed fines in this mixture.

Availability of Personnel

The third and last problem, that of availability of experienced personnel to supervise the paving and operate the plant, is vitally important. The operation of the plant is not too difficult, since most of the manufacturers of asphalt plants will provide experienced supervisors who will train men thoroughly in its operation. A number of the larger manufacturers have paving experts on their staff who can be called upon for assistance in starting a paving program, and the Asphalt Institute is always glad to help out with paving problems and the use of asphalt.

Unless there is someone in charge of the work who is thoroughly familiar with this type of paving and who knows the necessary precautions, extensive failure in the paving can take place. In addition to these problems, there is the question as to how the paving is to be put down after the plant has been obtained. We all know that in the old days the mixture was placed on the roadway by hand and the materials raked to grade by hand rakers. However, this is a slow job and experienced rakers are hard to find. A mechanical paver, of course, is the answer to a good job. From my experience, the Barber-Greene does the best job, but these pavers are expensive. Unless the program is sufficiently large to warrant the investment, I do not believe that a unit of this type should be purchased. Without a doubt, for a small program a paving machine could be rented to do the job.

Costs

Now I am aware that everybody is anxious to know what this type of pavement costs, and here again there does not seem to be any uniformity in the reports issued by the various municipalities. I have seen one report from a city in Minnesota quoting a price of $4.60 per ton of hot asphalt complete in place, and then other reports quote prices as high as $10.50 per ton in place. It is difficult for those not thoroughly familiar with hot asphalt paving to visualize asphalt paving on a ton basis. The usual unit of measurement for street construction which is readily understood is the square yard, but this unit of measurement for comparison on asphalt paving costs is misleading, since the thickness of the paving also enters into the over-all costs. If a job requires 1 inch of paving and the estimated cost was figured at $0.50 per square yard, it would be more or less natural to assume that a job requiring a pavement 2 inches thick would cost twice as much per square yard. However, this is not the case. It does not take any more labor and requires very little more time to place a 2-inch pavement as compared to pavement 1 inch thick, and about the only increase in cost is in the amount of material used. Because of these factors, the ton of asphalt paving complete in place has become the unit of measure in the asphalt paving field, and the price per ton includes furnishing the aggregates, the asphalt binder, mixing, transporting, spreading the mixture on the roadway, and compacting or rolling the finished surface. Any work necessary to prepare the subgrade or old road surface is of course additional expense.

On this basis, the cost in the City of Bangor has been consistently between $7 and $7.50 per ton over the past five years, and we have been able to maintain these costs during the last two years, despite rising prices of materials and supplies, because of our experience gained in doing the work and by paying close attention to all details of the work. The average price for asphalt pavement work on contract jobs throughout the state has been around $10 per ton.

How to Estimate

No doubt you are wondering how to determine the amount of tonnage required on any job. I would suggest the following procedure: figure the number of square yards of surface to be covered, then decide on the thickness of the hot asphalt pavement required; from this information the number of cubic yards of material needed can be determined; then multiply the number of cubic yards of material needed by two, and this will give you the number of tons of hot asphalt required for the job, since a cubic yard of pavement weighs approximately 2 tons.

In view of the many problems involved in purchasing, maintaining, and operating an asphalt mixing plant, you may well ask what other alternatives are there for a smaller community other than having the hot-asphalt paving work done on a contract basis. Among the various methods of preparing premixed paving or patching materials is the so-called "Durfee" mix, which probably requires the least amount of equipment. By this method, the mixture is prepared by a power shovel, preferably with a capacity of a half-yard, and a distributor of 1,000-gallon capacity. The shovel is moved to the stock-pile of aggregates to be used, and a distributor with the grade of tar desirable is moved into position; then the shovel moves the aggregates from the stock-pile to separate pile, and as each bucket of aggregate is dumped, tar is spread over this aggregate, and each succeeding bucket is dumped on top of the preceding bucket, thus building up the pile in a cone shape. This process continues until about 50 cubic yards of aggregates have been handled, and the 1,000 gallons of tar have been applied during the process. In this way, 50 cubic yards of pre-mixed material is obtained per 1,000 gallons of binder used. This pile is then turned over two or three times by the shovel to get a better mixing of the tar and aggregates. In this manner, patching material can be prepared, or the mixture can be used for surfacing work.

Alternate Methods

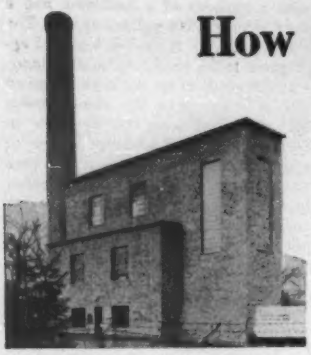
Another method of preparing cold mix is by the use of an old concrete mixer, preferably with a capacity of a half-yard or greater. The mixed materials are handled in the same manner when mixing concrete, except that tar or asphalt is used for the binder. On the average, it will require from 22 to 24 gallons of binder per cubic yard of aggregates to make a satisfactory mixed material. These mixed materials can be kept in stock-piles and used as needed.

Another relatively simple process for resurfacing work is by the use of the so-called "mixed in place" method. In this procedure, the aggregates are hauled onto the section of road or street to be resurfaced and spread to the required thickness, possibly from 2 to 3 inches in depth. Then the material is put into a windrow by a grader and the tar or asphalt applied to this windrow at the desired rate, probably not in an excess of ¾ of a gallon per square yard of finished surface at 2 inches thick. After the application of tar or asphalt to the windrow of aggregates, these materials are then worked back and forth by the grader to obtain a thorough blending. After complete mixing has been obtained, this mixture is spread to the desired thickness and shape by the grader and then rolled. After this work has been completed, a seal coat can be applied at the rate of about ¾ of a gallon per square yard, and covered. Then the finished surface is given the final rolling. Any of these methods are not too expensive and they do not involve the use of specialized equipment. These methods, of course, will not provide a pavement of the quality of the hot asphalt mix, but they do provide means of improving street surfaces.

How Corning Established A Municipal Refuse Service

A new self-stoking incinerator and a complete refuse-collection system are set up

By NEWELL L. NUSSBAUMER
Nussbaumer, Clarke and Velzy, Inc., Consulting Engineers
Buffalo, N. Y.



The three-story Corning incinerator.

PRIOR to 1948, garbage in Corning was collected by a private contractor who charged householders about 25 cents per week. The contractor fed most of the garbage to hogs and placed the rest on an open dump. This was not a particularly satisfactory practice in either case, from a sanitation or nuisance standpoint. The contractor maintained no scheduled collection for rubbish or ashes. Some engaged him to take ashes for an additional charge. Others disposed of the material themselves as best they could. The average cost per single-family house for collection of all garbage and burnables by this system was about $13 per year. Assuming a population of 17,000 people in Corning, with four persons per house, this would make approximately 4,250 homes or businesses from which collections could be made. On the further assumption that every house engaged the contractor, these services were costing the people of the municipality about $55,250 per year. Actually, however, not everyone engaged the contractor for this work.

During the war, with rising costs and the difficulty of securing labor, the collection services became somewhat irregular. It was at this time that the city's Public Works Committee decided to construct a municipal incinerator, and to provide municipal collection services for garbage and burnable refuse.

Study Showed Needs

The city's first step was to make an engineering study to determine the location of the incinerator, the type and size of incinerating equipment, the type of collection trucks to be purchased, and the collection schedules and routes to be installed. It was our privilege to be retained for this task. In addition, we made recommendations regarding the preparation of garbage and refuse for collection, and also for charges to be made for the municipal services.

Our studies indicated that a single unit of 80 tons' capacity in 24 hours was needed. This appeared ample not only for Corning but also for its adjoining villages of Riverside and Painted Post. We recommended that the incinerator be operated now on an 8-hour basis. If and when refuse volumes increased, the plant equipment could be put on a 12- or 16-hour basis as conditions might dictate. We planned no further equipment expansion in the proposed structure.

Plant Sites

Corning is located in the Chemung River Valley, with its side streets extending up the fairly steep sides of the valley. Several sites for the plant required study.

The side-hill sites, which would permit ramping into the third floor of the incinerator structure for truck deliveries, were at some distance from the center of population and involved longer and more expensive hauls.

There was a centrally located site near the city park, and only a block from the public-works department garage, which was flat but would be fairly well isolated from near-by residential buildings when trees were planted. We recommended this site, and proposed a design that used a hoist-and-bin type of feed. While the first cost was somewhat in excess of buildings on the other sites, we found that over a period of years the lower collection costs would more than offset this. In addition, there was some advantage in having the structure near the public-works garage.

The plans called for a three-story structure, including a charging floor, stoking floor, and ash-removal floor. Bids were received in June 1947. The equipment was delivered during the summer of 1948. The project was completed in the early winter of 1948, and the test for acceptance was run in January 1949.

The completed incinerator is built around one 80-ton Nichols Monohearth incinerator furnace. Charging facilities are on the top floor; stoking of the furnace and dumping of grates is done from the second floor, and removal of ashes from the ash hopper, at the ground-floor level.

The building is built of Horseheads brick in the exterior, and buff Kittaning brick on the interior, with glazed tile in such locations as require frequent cleaning. Glass-block panels give light where ventilation is not required. The general design of the building is functional. It has been built around the space requirements for operation. No unnecessary architectural features have been included.

All Refuse Weighed

Before the plant receives the material to be burned, each truck is weighed on a truck scale located in the entrance driveway on the east side of the building. The scale beam is in the office inside the building opposite the scale. The truck, after being weighed, takes the material to the rear of the building and dumps it into a storage or receiving bin at ground level. This bin has been designed to hold about 80 cubic yards, or the deliveries for a maximum day. It measures 12 feet by 18 feet in plan, and is 12 feet deep. The bottom 7 feet are narrowed to form a hopper shape so that the bucket can clean the entire pit.

Next, a Shepard Niles Company hoist on a monorail at the ceiling level of the charging floor transfers the refuse to the charging hopper. The hoist is a 3-ton model and carries a Blaw-Knox 1½-cubic-yard lever-arm-type bucket. The hoist's traveling speed is 150 feet per minute. The bucket-lifting speed is 75 feet per minute. An operator in a cab rides with the bucket, dropping the refuse into the charging hopper. This is equipped with a Beaumont Birch charging gate, hand-operated from the stoking floor, and releases the material, as desired, into the furnace. At the stoking-floor level, hand

stoking, as needed, can be done through the furnace doors. However, this is reduced to a minimum by operating the Monohearth rabble arms and by forced draft through the central cone supporting the arms. The Monohearth drive is located in front of the furnace. The electric controls for all of the machinery are mounted on a panel located conveniently for the furnace operator. A pyrometer indicator is mounted on the panel board.

In addition to the office, and the ash tunnel for trucks to remove the ashes, the plant has a gas-fired heating boiler, and a waste-heat boiler for heating the building. The piping connections are so arranged that when the incinerator is in operation, the waste-heat boiler will assume the entire heating load. When the temperature falls in the furnace to a point where the thermostat calls for heat beyond this boiler production, the gas-fired boiler is placed in operation automatically. Over a weekend, when the plant is not in use, the thermostat is placed at a low point above freezing to reduce the fuel costs.

Deliveries

Deliveries to the incinerator during the first year varied from 10 to 20 tons per day. Burning rates during the test for acceptance equaled the guaranteed capacity of the equipment. The temperatures averaged over 1,400° F. when the volume of the deliveries permitted continuous charging.

In December 1948, the city passed a second ordinance to provide for the financing of the maintenance and operation of the collection service and incinerator. This was based on a canvass of the city, prior to the adoption of the ordinance, to see how many potential customers there were, how many cans per week they would use for garbage, how many had kitchen garbage grinders and home incinerators, and what charges would be required to cover the operation costs.

Budget for Operation of Corning Incinerator, Including Collections—July 1950-July 1951

Wages	$32,812
Office expense	500
Maintenance	
plant	500
trucks	500
Materials and supplies	
gasoline	800
building	200
Repairs	300
Power, heat	1,150
Insurance compensation	2,100
Miscellaneous	640
Telephone	39
Grading and black top	1,500
Total	$41,041
1949-1950 Budget	$36,000

The income, based on quarterly charges, is estimated to be about as follows for the 1950-51 period:

Estimated in Corning, 3,260 families at $11	$35,860
Estimated in Painted Post, 440 families at $16	7,040
Total income	$42,900

The revenues are, therefore, adequate to cover all operating costs for both collections and incineration. The amortization charges for the incinerator construction are met by general taxes.

The ordinance stated that the municipality would collect garbage weekly from the residents and daily from store areas, would prohibit garbage collection by other persons than the city, and would make a charge of $2.75 per quarter per can for householders, or $11 per year.

In June 1949, the city had about 3,400 "customers," as compared with the 2,200 who had used the services of the private contractor. About 1,000 residents in either single-family or multiple houses were not using the service. The maximum number of users in 1949 was about 3,000, who brought in a revenue of about $33,000 per year.

The bills are mailed out quarterly by the City Chamberlain, and are payable on the 20th of the month in which they are issued with a discount for prompt payment. Unpaid bills become a lien on the real estate. Bills are subject to a 10% penalty if not paid within the grace period.

Serves Other Communities

In 1950, beginning January 1, Corning agreed to collect the garbage and refuse in Painted Post. The individual householder in this community pays his village the same rate as a householder in Corning, but the Village of Painted Post pays Corning $16 per family per year. The additional $5 per year represents the amortization charges on Corning's building, which are borne in Corning by general taxation. The year started with 440 families using the service.

The incinerator operating force includes the superintendent, the hoist operator, and the stoker.

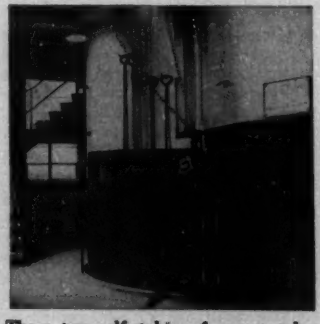
The city purchased two Hydropacka collection trucks of 13 cubic yards' capacity. These trucks, made by Marion Metal Products Company, are loaded through two side ports, which are closed when the packer moves the material to the rear. One truck carries a driver and four men, and the other, a driver and three men.

When the truck is emptied at the incinerator, the rear gate is opened and the contents are discharged by moving the packer to the rear. The truck body is not of the dump type.

The operation of the incinerator and the collection services are under the direction of Carl Wilson, Superintendent of Public Works. The superintendent of the incinerator is Mr. Guinaldi. The ordinance covering the financing by fees was instituted under Mayor Howard F. V. Cole's direction.

The wide-mouth bucket grabs a load from the hopper-shaped receiving bin.

A crane on a Monorail takes refuse from pit to furnace-charging hoppers.



These two self-stoking furnaces take care of the burning operation.

Clarifiers that Correct

Columbus, Ohio, builds three new clarifiers and mixing basins to improve water treatment rather than to add more plant capacity

By CHARLES P. HOOVER

One of the last pictures of the late Charles P. Hoover, taken at the Columbus water-filter plant. This discussion of "Clarifiers that Correct," made available to THE AMERICAN CITY by Paul C. Laux, present Superintendent of Water of Columbus, Ohio, is the last article written by Mr. Hoover prior to his recent passing.

With the death of Charles Hoover, the world lost the second of probably the most distinguished pair of brothers in the sanitary engineering field. He and his brother Clarence, who passed away a year earlier, led the water-works profession along the way to the modern lime-soda-ash softening process that has made so many water supplies so much more useful to so many, many householders and industries. Throughout the entire world the advice and counsel of these two men were sought and freely given. This account is typical of their quiet, practical approach to all water problems.

THE objective of the recent improvement to the Columbus water-treatment plant was one of increased efficiency of operation, not of increasing the plant's rated capacity.

To attain this objective, three new 140-foot clarifiers, equipped with Hardinge sludge-removing mechanisms, were installed. They were connected with the existing settling basins by means of a long concrete flume equipped with Dorr flocculating equipment. The capacity of the plant is still rated at 50 million gallons per day, and it is still necessary to operate it at much higher rates during short periods of time. Satisfactory water can be obtained at pumping rates up to 65 mgd, but best results are obtained when the plant is operated at not over 55 mgd.

At a pumping rate of 50 mgd, the chemically dosed water is retained in the new clarifiers for a period of 2½ hours. The new flocculator channel provides a second mixing period of 20 minutes.

Chemicals Added in the Plant During Normal Operations

During times of normal operation, all chemicals will be added in the plant, as in the past. The water, with the chemicals added, will flow through the original baffled mixing tanks into the new clarifiers, and thence through the new long flume to the original settling basins. Since the bulk of the sludge will be precipitated in the new clarifiers, and will be continuously removed, the effluent from them will be much more amenable to clarification in the original settling basins, and a better quality of water will be available for application to the filters.

On the basis of results obtained with laboratory experiments, a split dosage of alum application is carried out on plant scale. The bulk of the alum is added at the head of the original baffled mixing tanks, and a small quantity is added at the head of the new flocculators. This dual application of alum has resulted in two distinctive advantages: one, the filter effluent from the settling basins is much clearer; and, two, the demand for CO_2 for recarbonation has been materially reduced.

Before the installation of these new devices, fine particles of precipitate is carried through the settling basins to the filters, and, at high pumping rates, heavy sludge was carried from the first to the second, and even to the third set of basins. All of this imposed a heavy load on the filters, and necessitated frequent washing of all of the settling basins. By removing the bulk of the sludge in the clarifiers, frequent washings of the original basins will be eliminated and maximum settling capacity in them will be maintained over longer periods of time.

The new flume, equipped as it is with mixing paddles (flocculators), will make it possible to add secondary coagulant dosages to the water as it leaves the clarifiers, thus increasing further the efficiency of the original settling basins. Fne carbonate precipitates, therefore, will be coagulated with alum and will be removed more readily in the original settling basins. It may be, too, that accidulated sodium silicate will be of real benefit, if added at this point. It sodium bicarbonate can be, too, that acidulated sodium silisoda ash, it can be added at this point to replace carbonation and also some of the soda ash required.

Standard Practice

At the present time, it is standard practice to recarbonate the lime-treated water in the final set of settling basins, or, at times, in the middle set. With the clarifiers in operation, it will be possible to recarbonate in the first set of basins. This will permit longer settling time for any precipitate formed by this process, which will be another factor in reducing the load on the filters.

During the time when the river is at flood stage, the new addition to the plant will permit an entirely different system of treatment. Alum will be added to the muddy water just ahead of the original baffled mixing tanks. After the alum-treated water has then been passed through the clarifiers, and the bulk of the mud removed, soften-

Here is an aerial view of the Columbus water-treatment plant with the new clarifiers in operation.

The drawing below shows how the plant, without being enlarged, operates today with new efficiency.

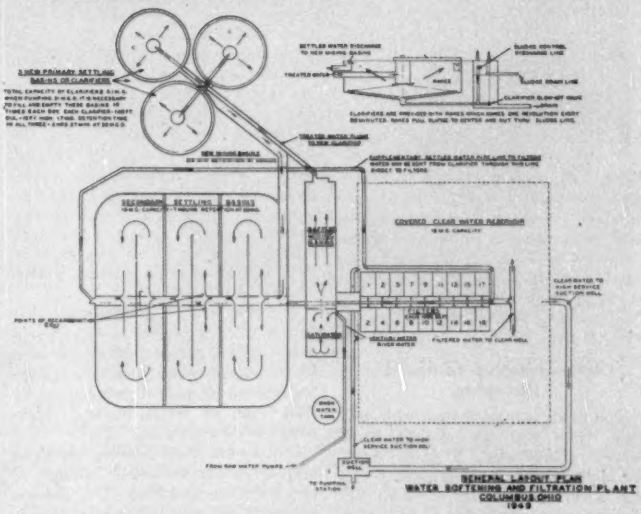
ing chemicals will be added at the entrance to the new flocculators. Flood waters, at times, require as high as 8 grains per gallon of alum for proper coagulation. Such high dosages reduce the alkalinity, frequently to 25 or 30 parts per million, while the carbon dioxide content is increased to 60 or 70 ppm.

Carbon Dioxide

It is hoped that the water, flowing in a thin sheet over the double effluent weirs, will lose most or all of the carbon dioxide content. If not, just enough lime will be added to stabilize the water. Under present operating conditions, this low-akalinity, high CO_2 water picks up considerable alkalinity from the sludge in the settling basins and from the incrustation on the sand grains in the filters. Water leaving the mixing tank with an alkalinity of 30 ppm will arrive in the settling basins with an alkalinity of 120 to 130 ppm. Frequently, under these conditions, the plant operates as a hardening plant rather than as a softening plant. With the new clarifiers in operation, and with secondary treatment and conditioning possible, this condition will be eliminated, and lime consumtion will be saved.

Taste and Odor Removal

Sometimes, not often, it becomes advisable to use activated carbon to remove objectionable tastes and odors from the water. Activated carbon is more effective in water which has been clarified and softened, because the lime and alum reactions remove some of the odor-forming organic matter, and because the presence of turbidity interferes with the action of the carbon. The installation of this new equipment makes it possible to add the activated carbon to clarified softened water, and



provides means of thoroughly dispersing it through the water. It should, therefore, be a more economical and practical way to reduce the tastes and odors.

Chlorine Efficiency

Bacterial kill with chlorine is much more effective in waters of low pH than in waters of high pH. During flood conditions, therefore, it is planned to add chlorine to the low pH water leaving the clarifiers, rather than to the high pH water, as is now being done. This should result in more effective sterilization with an appreciable saving in the amount of chlorine consumed.

Certain types of tastes and odors are more readily removed by breakpoint chlorination than by the application of activated carbon. When these odors are encountered, it will be possible to apply the chlorine dosage to the water in conjuction with the alum just ahead of the original baffling mixing tanks. The time required for the water to pass through the clarifiers will be made use of to complete the oxidizing action of the chlorine. The softening chemicals will then be added at the entrance of the new flocculators. Flood waters, at times, require as high as 8 grains per gallon of alum for proper coagulation. Such high dosages reduce the alkalinity, frequently, to 25 or 30 ppm, while the carbon dioxide content is increased to 60 or 70 ppm.

Plans and specifications for the addition were prepared by Marshall Houghn and Chester E. Crist, waterworks engineers. The construction work was also done under their supervision.

What New York City Has Learned About Street Cleaning

By CASMIR A. ROGUS*
Director of Engineering
Department of Sanitation
New York, N. Y.

THE 6,000 miles of streets in New York City are swept both manually and with mechanical brooms. About 1,400 men are now assigned to hand sweeping of heavily parked gutters. This work is supplemented by some hand sweeping by the two waste-collection loaders during the truck's travel to and from the point of disposal. About 40 power brooms are assigned daily to the mechanical sweeping of free gutters.

Mechanization of Hand Sweeping

Experience supplemented with test data shows that the average hand sweeper cleans about 2 gutter miles per eight-hour shift. This work is tiring, slow, and difficult to supervise. Mechanization would be fruitful if a highly maneuverable, small power broom could be developed to do a fair cleaning job in spite of some parking. To accomplish this, we tried adapting the vacuum-type industrial brooms to this task. After some obvious mechanical modifications, three makes of these brooms were tested. Preliminary results seem very promising.

Application to gutters with car occupancy up to 50% is feasible, and the work output per man is about tripled. The operator, seated comfortably on the unit and with excellent visibility, steers the broom close to the curb until he reaches a parked vehicle. There he stops, steps down about 12 inches to the street, manually sweeps the inaccessible areas around the car, and dumps the dirt into a sanitary, removable metal container on the unit. A front, bumper-type, flexible wire rake gathers the loose litter ahead of the unit for occasional manual pick-up.

Our present specifications for further development require the unit to be equipped with dual gutter brooms, a blower suction to alleviate the dust nuisances, and other improvements to step up the quality of sweeping and to decrease safety hazards. In the light of the lessons learned from repeated tests, one manufacturer is further improving his latest models while the other is building a completely new, specially designed unit. Both designs should eventually fill the pressing need of this and other large cities for mechanizing the "white wing."

Our tests further demonstrated that gutters with parked-car occupancies in excess of 50% can be cleaned only with the alternate-curb, alternate-day parking scheme, by manual sweeping, or by some type of lateral-operated, high-power suction machine.

Our present street-cleaning technique calls for power flushing in advance of the brooming operation. This loosens the street dirt and litter and pushes it into the gutter for a ready broom pick-up about one hour later.

Field Tests Conducted in the Summer Months

Field tests were conducted on this operation in the summer months to determine equipment capabilities, operating costs, and potential improvements in the technique and in the equipment used. Five different models of power brooms were operated in densely populated areas, mostly with sheet-asphalt pavements and with parked-car gutter occupancy of about 25%.

It was demonstrated that the two largest types of brooms available gave the best performance, sweeping 3½ gutter miles and about 800 pounds of material per hour of sweeping time—this for a daily scheduled route. Our numerous one-way streets emphasized the needs of dual gutter brooms and controls in eliminating the more hazardous and less efficient contra-traffic operation. Our average long hauls to permanent dumping points, or the unsanitary and hazardous practice of using temporary dumping points in open lots or streets, led to the adoption of large 3-cubic-yard hoppers. To further rectify the present unsightly and costly rehandling of swept materials, three detachable-hoist and container manufacturers and four mechanical-broom manufacturers were requested to cooperate in developing a sweeper which would permit a ready drop of the filled hopper container out of the broom body and onto the curb, and its replacement with an empty container at the same station. These containers would be serviced by a much faster chassis-mounted hoist, traveling a scheduled route. Incidentally, these same containers would perform the secondary functions as "dirt stops" or dumping points by the manual sweepers.

Pilot Model Completed

Two of the manufacturers have undertaken this development and have just completed a pilot model for field-testing and adjusting before submitting it to us for final trials.

Surprising as it may seem, New York City has a major leaf-collecting problem in its outlying residential areas. This has been accentuated in recent years by city statutes which prohibit leaf burning because of the smoke nuisances and fire hazards. As in many other cities, leaf collections, heretofore, were an improvised operation. With the advent of the vacuum-type collector, dry leaves can now be sucked up, shredded by the blower blades, and packed into the body in a dense mass.

Four different makes of vacuum leaf collectors were tested, both trailer and chassis-mounted, to determine their capabilities, possibly add to their mechanical development, and to devise proper operating techniques. Most known concepts of using such equip-

Results of research and experience show the value of more mechanization of redesigned sweepers and of pneumatic leaf-collecting devices

* This information was part of the program of the New York-New Jersey Chapter of the American Public Works Association, held in New York City on May 24th.

PHOTOS COURTESY NEW YORK CITY DEPARTMENT OF SANITATION

The City prefers this type of leaf-gathering nozzle. The blower is mounted on the truck.

New York City finds that large mechanical sweepers can be expected to work efficiently only if 80% of the curb space is clear of autos.

ment either require advance piling of leaves or the use of long flexible-hose attachments on the principle of the stationary house vacuum cleaner. After testing, these two ideas were discarded because of their slowness and costliness. In their stead, it was found that leaves could be picked up economically in their natural windrowed state in the gutter by passing a semi-rigid, wide-intake nozzle attached to the side of the collector body, directly over the leaves. A 30-inch-wide, elliptical-shaped nozzle, equipped with a bottom flexible gasket riding on the street surface, adjusted itself to street-surface irregularities and picked up most of the leaves in the gutter at a pace of 0.75 curb miles per hour of operation. A perfect leaf clean-up requirement is not warranted since the continuous leaf dropping will require repeated passes at two- or three-day intervals, depending on varying circumstances. The best machines were able to pick up leaves at an average rate of 1,000 pounds per hour of operation. The average leaf density in the body was about 350 cubic yards. Occasional matted leaves in the gnutter require some manual loosening or fluffing in advance of the nozzle. Our discussions with the manufacturers at this point are aimed at providing dual-intake facilities for either side collection on one-way streets, reduction of excessive blower noise, reduction of occasional dust nuisances, and detailed nozzle and intake designs.

Conclusion

In closing, we wish to emphasize that no claims are made of sole authorship for the ideas tested and results obtained. Credit, therefore, rightfully must be shared with all members of the Department and our equipment manufacturers. I particularly wish to thank Commissioner Andrew Mulrain for his sympathetic understanding of our problems and our efforts. I also wish to thank members of my staff and the Division of Analysis of the Bureau of the Budget for their cooperation. Lastly, much credit is due Assistant Commissioner Donnelly and his staff for developing many of the mechanical improvements, which have been incorporated in our apparatus.

New Jersey Home Builders Install Own Sewage-Disposal Plant

A NEW concept in suburban home building was introduced in June in the 187-home colony at Midland Park Estates, in Midland Park and Waldwick, N. J. It came with the announcement of formal plans to construct not only sanitary sewers but also a complete, modern sewage-disposal plant in an area serviced by cesspools and septic tanks for generations.

Michael Shapiro, of Passaic, and Mayor Emil J. Geering, of Paramus, the builders, said the tentative estimated cost of construction of the disposal plant alone would approach $250,000.

The builders, who have won high praise for their venture from the New Jersey State Department of Health's Bureau of Environmental Sanitation and from the local governing bodies in Waldwick and Midland Park, reported they have been informed by governmental agencies that their tract will be the first in New Jersey in which the contractor has voluntarily, and with no financial aid from a municipality, erected a sewage-disposal plant.

Geering and Shapiro also announced they will donate sufficient land to be dedicated to municipal use to a sewer district authority to be appointed by the two towns. When the sanitary sewers are connected to the plant, the builders will deed the entire property and machinery to the district authority for operation and maintenance of the system.

The Construction and Operation Of Control Centers

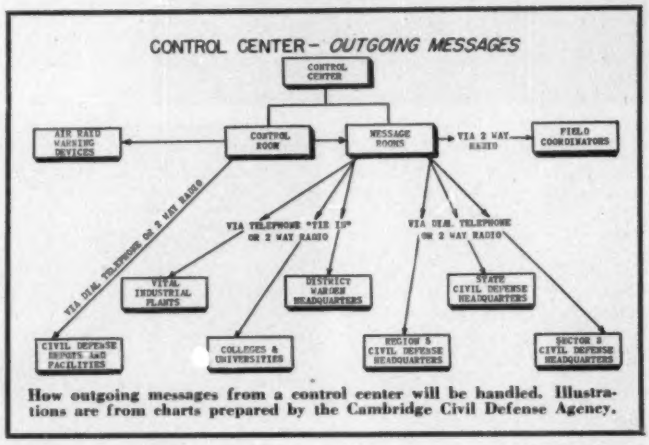
By DR. WALTER L. CRONIN
Director of Civil Defense
Cambridge, Mass.

UNLESS critical-area communities provide in their plans for maximum safety for their control centers, they should abandon all civil-defense activities. The control center is the heart of the organization. Without it, civil-defense operations could become like mob behavior. All of the effort in organizing and training, and all of the equipment and facilities, will be of little value if the control center is not in operation after a disaster.

Too great a stress cannot be placed upon its importance. This is especially pertinent because many municipal administrators, weighing the terrific cost of adequate facilities, are playing the part of the "ostrich head in the sand," and are content with control centers which will not be in existence after a disaster.

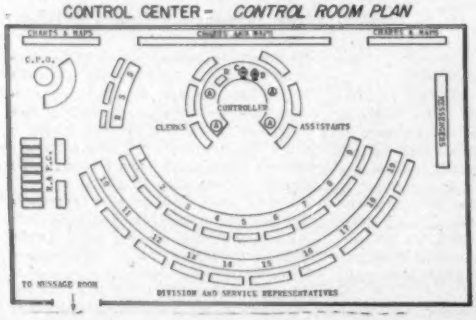
The minimum of one control center to about 100,000 people is advisable. Densely populated cities like New York and Chicago, however, can handle a population of more than 100,000 through one control center, because of their concentrated population. It is important to have control-center procedures as simple as possible, to hold confusion at a minimum.

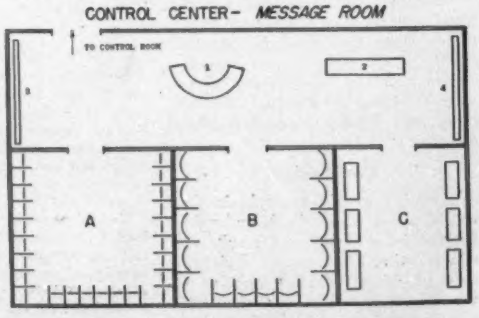
A control center should be adequate in equipment, efficient, well protected, and situated in the perimeter of a community—at least two miles from the potential target point. It should be of reinforced concrete, conforming to federal shelter specifications. Provision should be made for auxiliary lighting generators, intake and exhaust fans (with attachments to filter war gases and fission products), a heating plant, an electric kitchen, a storage closet for readily cooked canned food, a storage tank for drinking water sufficient for the staff for three days, showers in the


CONTROL CENTER – OUTGOING MESSAGES
CONTROL CENTER
AIR RAID WARNING DEVICES
CONTROL ROOM
MESSAGE ROOMS
VIA 2 WAY RADIO
FIELD COORDINATORS
VIA TELEPHONE "TIE IN" OR 2 WAY RADIO
VIA DIR. TELEPHONE OR 2 WAY RADIO
VIA DIR. TELEPHONE OR 2 WAY RADIO
VITAL INDUSTRIAL PLANTS
DISTRICT WARDEN HEADQUARTERS
STATE CIVIL DEFENSE HEADQUARTERS
CIVIL DEFENSE DEPOTS AND FACILITIES
COLLEGES & UNIVERSITIES
REGION 5 CIVIL DEFENSE HEADQUARTERS
SECTOR 3 CIVIL DEFENSE HEADQUARTERS

How outgoing messages from a control center will be handled. Illustrations are from charts prepared by the Cambridge Civil Defense Agency.

Letters in the control-room plan represent: A, dial telephones; B, radio loudspeaker or earphones; C, radio microphone (B and C are connected by toggle switches to any of the two-way radio units in the message room, permitting the controller to communicate directly by two-way radio if necessary); D, public-address system; R.&F.C., record and file clerks; C.P.O., chief plotting officer; RSS, liaison with state or other mutual-aid stations, or with the other control centers which are located in the same community. The key to the message-room plan is as follows: 1, message-room controller; 2, records and file clerk; 3, messengers; 4, map of the city; A, telephone room with sound-proofed booths; B, radio room—sound-proofing of the cubicles is of the utmost importance here; C, room for teletype, telegraph, and any additional mechanical means of communication.





dressing rooms situated adjacent to the entrance, toilet facilities, and two rest rooms with cots.

At least two exits should be provided, and a third emergency exit is advisable. Lighting fixtures should be concussion-proof, and the replacement of lamp bulbs should be simple.

It should not have any windows. Doors should be of substantial metal construction, with an air-lock chamber. The room housing the heating plant, auxiliary lighting system, oil storage, etc., should be separated by a substantial concrete wall. Passageway to the control center should be by way of heavy metal doors, preferably double doors with air locks.

While, from a protection viewpoint, underground control centers would be best, new construction of this type will represent about three times the cost of aboveground control centers.* A basement control center, if used, should be of construction capable of withstanding the impact of the collapse of all of the stories above it.

The operating facilities should be divided into two rooms, a message room and a control room.

Message Room

The message room will receive and dispatch messages by every means of communication available. All messages received are routed through the message-room controller, who sends them to the proper official in the control room. All messages received from the control room for transmission in the message room are routed by the message-room controller to rooms A, B, and C for dispatching. No telephone switchboards are used in order to minimize communication failure. A portion of the telephone lines are unlisted, and will be reserved for outgoing calls.

Control Room

The control room establishes supervision over all activities combating the disaster. Every effort should be made to maintain communication with depots, facilities, personnel, and the disaster scene.

In addition to the use of the message room for the receipt and dispatch of messages, the control room will maintain telephone communication for division and service representatives by direct wire to their depots and facilities. In by-passing the telephone exchange, service interruptions at this source will be eliminated. In the event of loss of telephone communications, messages will be transmitted through the message room by way of radio. Inter-com systems between the division and service representatives and the controller would provide further refinements, where found advisable.

Message forms should be simple, yet contain all necessary information. They should be so printed that a minimum of writing would be required, in order to convey a clear and definite message.

Experience has taught that the circular floor-plan for operating personnel is the most efficient. All messages not specifically routed otherwise, are routed do the controller. If it is of general interest, it is announced over the public-address system.

Radios will be the most important means of communication. In addition to police, fire, taxi, and other established wave lengths, advantage should be taken of all channels available in the "ham" as well as the allotted civil-defense bands.

A target city cannot have too many two-way radio channels, and should use all at its disposal, without interfering with the rights of contiguous communities. By the use of earphones and a hood over the microphone, the police and fire radios can be connected directly to their respective desks in the control room at the service-representative desks alloted to those services. This will expedite communications over these channels. Again it should be stressed, "There is nothing in Civil Defense as important as your control center."

* In Cambridge, Mass., a city of 120,000, the planning board has estimated that to build a suitable control-center structure underground, without equipment, will cost $150,000. This would be a building of approximately 54,000 square feet, with a ceiling height of 12 feet.

Conference of Mayors Recommends 600 Millions for Civil Defense

IN A memorandum presented to the President in June, The United States Conference of Mayors reported that an appropriation of 600 millions for the federal civil-defense program for the next fiscal year "would permit the government to make a real start towards preparing the nation for any eventuality." The recommendations were discussed with the President by Mayor David L. Lawrence of Pittsburgh and Paul V. Betters of Washington, President and Executive Director, respectively, of the Conference of Mayors.

With a nation-wide survey as a basis of the combined requirements of so-called potential target area cities, the funds proposed would cover all phases of civil defense including a beginning on a shelter program.

The Conference memorandum pointed out:

"Since passage of the act Congress has done very little in the way of appropriating funds for the carrying out of the program. It is important, however, that at this time the Bureau of the Budget take a realistic view of the situation and that when it submits estimates for the coming fiscal year such estimates be adequate and provide for all phases of civil defense as contemplated in the basic law. If Congress should fail to appropriate the amount of funds required to do the job—then our cities can come to but one conclusion—that we should not take this program too seriously."

The breakdown of the minimum civil-defense appropriation for 1951-52, as recommended by the Conference, follows:

1. Organization Equipment (including Fire and Rescue equipment; Engineering and Communications equipment, including sirens; Transportation equipment; and Medical equipment.)	$ 75,000,000
2. Stock-piling of medical supplies, including blood	210,000,000
3. Shelters	275,000,000
4. Training, Education, Research and Development, and Administration	40,000,000
	$600,000,000

The above figures contrast sharply with Congressional action late in May on a supplemental appropriation bill. An original civil-defense-budget request was chopped down from $403,000,000 to $31,750,000. Of this small amount, $30,000,000 must be matched by state and local governments, with $20,000,000 for the purchase of medical supplies and equipment; $5,000,000 for training and education, and $5,000,000 for civil-defense equipment. The amount of $1,750,000 is for Federal Civil Defense Administration operational expenses.

The fund for stock-piling medical supplies and equipment was reduced to a third of the amount estimated as needed. Moreover, the Federal Civil Defense Act sets forth such stock-piling as completely a federal responsibility, and not a matching-fund proposition. Help on purchase of warning devices was eliminated, as well as most of the rest of the original proposed program.

LONG BEACH, CALIF., BUILDS

A Multi-Tank Water Reservoir

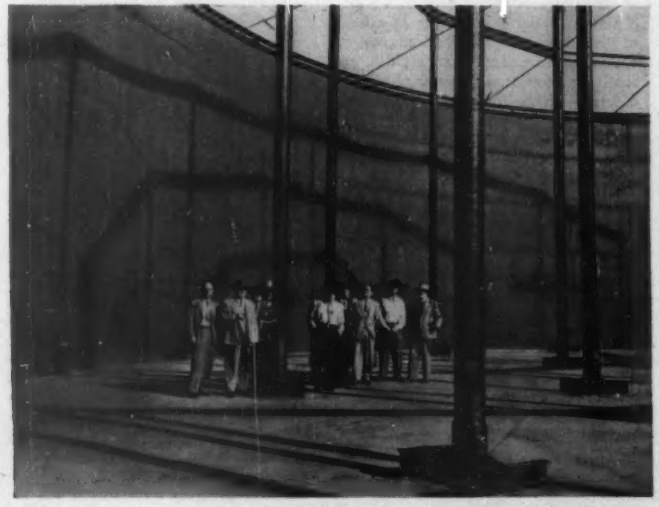
Some of the twelve steel tanks forming the new reservoir. Multiple tanks help protect against loss during earthquake.

Each tank has special bracing to make it earthquake resistant

Special attention was given to foundation drainage

By BRENNAN S. THOMAS
General Manager and Chief Engineer
Long Beach Water Department
Long Beach, Calif.

LAST FALL, Long Beach, Calif. completed its largest forward step in the execution of its master expansion plan for the Water Department by erecting the 40,000,000-gallon J. Will Johnson Reservoir on an 18-acre hill site near the city. The site is ideal because its elevation of 170 feet is the same as the department's existing Alamitos Reservoir. The reservoir is named in honor of the immediate past president of the Board of Water Commissioners.



Officials inspect the interior of the tank, with its special bracing. Tie rods strengthen the wood roof and the rafters, which alone did not adequately stiffen the top of the shell.

It is one of the few reservoirs in the country which employ multiple tanks instead of a single reservoir. Each tank contains slightly more than 3.3 mg. The use of multiple tanks provides protection against loss in case of earthquake. The tanks themselves are designed to resist earthquake stress.

The reservoir consists of 12 steel tanks, each 132 feet in diameter and nearly 35 feet high. The walls are of five separate courses of welded-steel shell plates. The thickness of the top course is ¼ of an inch. The lower course is ⅞ of an inch. The thickness of the intermediate courses varies proportionately. The tanks are covered with a wooden-roof structure built on steel girders supported by columns of 8-inch pipe.

The tank reinforcement deserves special attention. This is supplied by twenty ⅞-inch-diameter tie rods with turnbuckles attached, extending radially from the central column to reinforce the upper rim of the tank. This is twice the number of tie rods used on the Department's Alamitos Reservoir. These, erected in 1932, successfully withstood the earthquake of 1933. At that time, a similar tank in a nearby city failed because it was not reinforced with tie rods.

Special precautions also were taken

for protection against softening of the supporting soil from water. Twenty 24-inch-diameter holes were drilled under each tank to a minimum depth of 20 feet. These holes were backfilled with coarse sand to drain away any trapped water under the tank into the more porous lower formations. A sand mat, 1 foot thick, was placed over the clay subgrade. The clay supporting the mat was shaped 1 foot higher at the center than it was around the circumference. This shaping was accomplished by a Caterpillar tractor and a Le Tourneau Carryall, spiraling from the center of the tank foundation at a minimum turning radius, and skimming or depositing sand in accordance with grade requirements. The results were unbelievably precise for such large equipment.

After the first shell ring was welded to the bottom assembly, the tub was jacked up on cribbing. It was then possible to complete the welding of the underside, and to sandblast and coat the underside with Bitumastic 70-B primer and 70-B enamel before lowering to the base. Just ahead of lowering, hot SC-6 road oil was sprayed on the sand mat.

After the tanks were erected, the interior was sandblasted and likewise given a coating of Bitumastic 70-B primer, followed by 70-B enamel. The bottom coating was ⅛ of an inch thick. The sides were coated to 3/32 of an inch. The exterior surface was given two coats of red-lead primer and a finish coat of aluminum paint.

Plans and specifications for the reservoir were prepared by the Engineering Division of the Water Department. The tanks were fabricated and erected by the Chicago Bridge and Iron Company. Work was completed last September.

How Truck Weights Affect Concrete Slabs

THE first important test of concrete-highway-slab strength since the famous Bates Road Test of years ago is beginning to show some remarkable results. Chief among them are that an increase in truck tandem-axle weights from 32,000 to 44,800 pounds causes about 11 times as much cracking as the lighter loads create. In tests of lighter loads, single axles loaded at 22,400 pounds cause approximately six times as much cracking as axles loaded to 18,000 pounds. The test was conducted in southern Maryland.

Depressed Joints

After 84,000 truck passes, 80% of the joints in the section carrying 44,800-pound tandem-axle loads were depressed, whereas with the same number of truck passes, only 10% of the joints in the section carrying 32,000-pound tandem-axle loads were depressed. After 137,000 truck passes, 22% of the joints in the section carrying 22,400-pound single-axle loads were depressed, whereas with the same number of truck passes, only 2% of the joints in the section carrying 18,000-pound single-axle loads were depressed.

Structural Failures

After 238,000 truck passes, 28% of the slabs in the section under 18,000-pound single-axle loads, and 64% of the slabs under 22,400-pound axle loads contained cracks which have been analyzed as constituting structural failures owing to the application of the test axle loads. Conversely, 72% of the slabs in the 18,000-pound section, and 36% of the slabs in the 22,400-pound section show no such structural failures.

After 92,000 truck passes, 27% of the slabs in the section under 32,000-pound tandem-axle loads and 96% of the slabs under 44,800-pound tandem-axle loads contained cracks which have been analyzed as constituting structural failures owing to the application of the test axle loads. Conversely, 73% of the slabs in the 32,000-pound section and 4% in the 44,800-pound section show no such structural failures.

These tests were reported by Fred Burggraf, Associate Director, Highway Research Board, Washington, D.C., before the recent annual meeting of the American Road Builders' Association which was held in Milwaukee.

Test Details

The test has covered a 1.1-mile stretch of concrete pavement subjected to continuous, around-the-clock, 7-day-per-week traffic, using four single rear-axle trucks loaded to 18,000 and 22,400 pounds per axle, and four tandem rear-axle trucks loaded to 32,000 and 44,800 pounds per tandem. In the six months, the eight trucks have traveled approximately 400,000 miles. The pavement is 24 feet wide and is divided at the center with a longitudinal joint. The cross-section is of the double-parabolic type thickened at both the outside and center longitudinal joint edges. The depth of the cross-section of each 12-foot lane is 9-7-9 inches. Expansion joints are ¾ of an inch wide at 120-foot spacing. Contraction joints are at 40-foot spacing with appropriate load-transfer bars at all joints.

The 30-year old Bates Road Test was conducted in Illinois shortly after World War I. It covered a wide variety of pavement slab cross-sections and concrete mixes. In these tests, trucks drove over the pavement until the slab was destroyed. The result of the test was the adoption, almost universally, of the thickened-edge-slab cross-section.

The cost of the project was shared by 12 state highway departments in monetary contributions; by the Bureau of Public Roads in providing personnel and services; by the petroleum industry in supplying gasoline, oil, and grease, and by the truck manufacturers of the Automobile Manufacturers Association in providing the eight test vehicles.

Single-axle trucks parade over the concrete test road in southern Maryland. Pavement cracking is eleven times as great when axle weights go from 16 to 22 tons, and is six times as great when the weights go from 9 to 11 tons.

Are Grease Traps Necessary for

Two studies in the Los Angeles area disclose that they are not— the cost is greater than possible benefits

PART I

By WILLIAM M. TIBBETT, *Sanitary Engineering Associate*
Los Angeles City Health Department, Los Angeles, Calif.

SECTION 1008 of the Western Plumbing Officials Association Uniform Plumbing Code requires that grease interceptors be installed in any restaurant with a seating capacity of over 15. This study analyzes their true effect on sewer stoppages and on public-health problems. The study covers 182 installations. The ordinance requires that grease traps be installed according to this table:

Total Number of Fixtures	*Grease Retention Capacity Pounds*	*Required Rate of Flow per Minute Gallons*
1	28	14
2	40	20
3	50	25
4	80	40
Dishwasher with tank capacity over 16 gals.	50	25

The study quickly showed that the 14-gallon per minute grease trap shown in the chart should not be used. Its retention capacity is too small for any practical application. The survey also showed that mechanical dishwashers using strong detergents did not require grease interceptors.

The ordinance states that once a day is the proper interval for cleaning a trap, and that it is unlawful to dump the grease cleaned from a trap back down the sewer.

In a general way, the larger the restaurant the shorter the interceptor cleaning interval—with only 4.8% of the traps cleaned daily.

In most cases where grease traps are cleaned, the solids found are put in the garbage cans and the liquid is run down the sewer. This means that a varying amount of grease will be flushed down the sewer under the best of conditions. The amount will depend upon how hot the interceptor is when it is cleaned out. Of 132 restaurants, the following disposal practices were found:

Garbage Can	89
Commercial Service, Grease Sold	26
Down Sewer	9
Chemical Emulsifier	5
Soap Making	1
Burned	1
Buried	1

According to the uniform Plumbing Code: "Every grease trap shall be so installed and connected that it shall be at all times easily accessible for inspection and for removal of the intercepted grease and cleaning of trap." Grease traps were found in the following locations:

Easily Accessible	13
Under Drainboard	75
Under Sink	50
Obstructed	7

Of course, the words "easily accessible" are open to personal interpretation but, considering the weight and size of the average trap cover, it is our opinion that the interceptor must be completely in the open in order to be "easily accessible."

The covers of 22 of these grease traps were bolted tightly or stuck shut and could not be pried open, while two of them had no covers.

With a cleaning schedule of a week or more it would seem reasonable to assume that the traps inspected would contain a large amount of grease. However, this was not the case.

Cleaning Schedule	*Amount of Grease Retained in Trap*	
	Small Amount	*Large Amount*
Daily	6	
Semi-weekly	8	4
Weekly	36	17
Semi-monthly	13	6
Monthly	8	5
Longer	5	1
Not cleaned	2	2
Total	78	35

As shown by the chart, a total of over twice as many traps were retaining a small amount of grease as those that were retaining a large amount. This condition is caused by several things:

1. The effect on the traps of waste from dishwashing machines. The strong soaps and detergents used in machine dishwashing emulsifies the grease and carries it on through the interceptor.

2. Improper installation and operation of the traps. In the majority of the installations it was found that the velocity of the water draining through was too great for the trap to work properly.

Under these conditions, one might naturally expect sewer difficulty. Actually, this was not the case. According to the survey data there have been 17 stoppages in the branch sewer lines in the restaurants having grease traps. These stoppages have occurred in the past several years and they amount to 9.3% of the establishments covered. During the survey 35 restaurants were contacted which had no grease traps, although they had a seating capacity of over 15. None of these establishments reported branch-line sewer stoppages due to grease.

There are approximately 9,000 restaurants in the city of Los Angeles. If, as indicated by our survey, 10% of them would have grease stoppages, we arrive at a figure of 900 stoppages in two years. The average cost of unstopping in these cases is $15. This gives us a total of $15 by 900, equaling $13,500 in two years' time. The cost of grease-trap installation averages roughly $350 each. If it is assumed that 75% of the restaurants require interceptors, the installation costs would be 7,000 by $350, or $2,450,000. At a $15 charge there would have to be 157,000 stoppages to pay for grease-trap installations or, at the rate of 450 stoppages a year, the traps would pay for themselves in 350 years.

When garbage grinders are used in restaurants, the finely ground material holds the grease to it by absorption. This property, plus the scouring action of the material in the waste lines, make it unnecessary to maintain a grease trap in a restaurant having one or more properly placed waste-disposal units.

Traps Cause Health Nuisance

If possible, health authorities believe that grease interceptors should be removed from restaurant kitchens. In most cases grease traps in restaurants are a catch-all for garbage as well as grease, and unless the traps are cleaned daily the contents may become very objectionable.

Cleaning Schedule	*Bad Odor*	*Some Odor*	*No Odor*
Daily	0	16%	84%
Semi-weekly	23%	31%	46%
Weekly	27%	31%	42%
Semi-monthly	26%	30%	44%
Monthly	17%	41%	42%
Longer	0	60%	40%
Never	50%	50%	0
Average	20%	37%	43%

The survey indicates that only daily cleaning will prevent grease-trap odors.

Restaurant Sewer Operation? —

Food-waste grinders eliminate the need for grease traps—automatic dishwashers reduce it

PART II

By WILLIAM J. CARROLL, *Waste Disposal Investigator*
Office of the County Engineer, Los Angeles, Calif.

WHILE the City of Los Angeles was undertaking its survey on the effects of grease and grease interceptors within the restaurant, the County Engineer was investigating the effects of grease from restaurants upon the 975 miles of lateral sewers in 76 sewer maintenance districts operated by the County Engineer.

Factual Data

The County Engineer's maintenance records go back to the year 1930. Since that time, his maintenance crews have made thousands of inspections of the public sewers. Grease has been recorded in these entries 78 times as cause of a partial or complete stoppage. Of the 78 times, 22 have been complete stoppages. It is interesting to note that of the 78 times grease has been mentioned, in 38 times, or about half, has it been found to occur as the only cause of the stoppage. In the other 39 cases it has been in combination with lint, rags, sticks, roots, paper, etc.

Survey of Complete Stoppages

The next step in the investigation was to gather existing information on the complete stoppages to see in what way restaurants had caused trouble.

From the investigation it was clearly evident that in 11, and possibly 12, cases, restaurants were the cause or partial cause of sewer stoppages. Of the 11 definite stoppages from restaurant grease, six of the stoppages resulted from restaurants that had grease interceptors before the stoppage occurred. Of the 11 stoppages, 8 occurred near the end of the line. In this investigation "near the end of the line" may be defined as within half a city block of the upper end of the sewer.

Survey of Restaurants Not Having Grease Interceptors

At the present time (July 1950) the County Engineer has records of about 1,600 restaurant kitchens discharging into the County Sewer System. These 1,600 kitchen comprise 1,400 cafes and restaurants, and 200 schools, churches, and institutions. Of the 1,400 restaurants, 394 have grease interceptors, and of the 200 schools, churches, and institutions, 69 have grease interceptors. This makes a total of 463 grease-interceptor installations in the County, that the County Engineer regularly inspects for proper maintenance. The County Engineer requires grease interceptors according to the same code requirements that were brought out in the first portion of this article. However, as in nearly all the applications, it is difficult to get 100% compliance. At present there are 47 kitchens which exist in the county which require interceptors according to code, but do not have them.

To double-check the work we have already done of checking the maintenance records, it was decided to locate a portion of these 47 kitchens on sewer maps and follow the maintenance records of the sewers that would constitute the flow paths of the discharges of these restaurants. One maintenance district stood out by itself in the fact that 17 of the 47 of the kitchens that required grease interceptors but do not have them were located there. Eleven of the 17 were plotted, and the maintenance records on sewer paths checked.

The final result was that in no case was there any trouble in the sewers as a result of grease. Five more kitchens were picked at random throughout the other districts and the results were the same—no trouble.

Effect of Restaurant Grease on Treatment Plant

Another necessary portion of our investigation is to determine the effects of restaurant grease on the Los Angeles County Sanitation Districts' joint disposal plant. Some idea of just how much of the total amount of grease received in the sewage-plant influent is due to restaurants must be derived so that the correct emphasis will be given to it and its effects on treatment-plant operation. We have already stated the number of commercial kitchens existing in the county. It is also possible to estimate the average number of meals served per day, but we lack one figure —how much grease is discharged into the plumbing per meal.

To get this figure we set up a field experiment whereby six restaurants with grease interceptors were visited every other day and the amount of grease collected by the interceptor measured. A running total of the amount of grease collected and the number of meals served was kept, and after a month an average figure of grease collected per meal was determined. These data follow:

Restaurant	*No. of Meals per Day Average*	*Average Amount of Grease Collected Lbs. per Meal*
#1	1200	0.005
#2	500	0.001
#3	200	0.002
#4	170	0.010 (dishwashing only)
#5	80	0.020
#6	50	0.001

Wide variance occurs here and it is understandable. Such things as the amount of pre-cleaning given the dishes, the efficiency of the interceptors, the installation of the interceptors, the type of meals cooked—all enter the picture. However, since for our calculations we need a figure, we will assume 0.01 pound per meal of grease is discharged into the plumbing by the average restaurant.

Going back to our original problem, we have 1,600 kitchens in the county, each discharging approximately 0.01 pound of grease per meal toward the sewer. Of the 1,600, 463 have grease interceptors and average 200 meals per day. The remaining 1,137 average about 100 meals per day.

Using the 0.01 pound of grease per meal, these figures give us 463 by 200 by 0.01, or 926 pounds of grease held back from the sewer by restaurants having grease interceptors, and 1,137 by 100 by 0.01, equaling 1,137 pounds of grease discharged to the sewer by those that do not have them. In 1949, two 24-hour composites collected at the treatment plant ran 178 ppm and 115 ppm. The treatment plant receives about 1,000,000,000 pounds of sewage per day, of which the County contributes about 300,000,000 pounds of sewage per day. The rest comes from 35 incorporated cities which discharge to the plant. If it is assumed that the average grease content of the County sewage is 115 ppm, then the total amount of grease contributed to the

treatment plant by the County is 34,500 pounds. The 1,137 pounds of grease contributed by restaurants is 3.3% of this total.

Looking at the over-all picture, it should be considered that only the County maintains regular inspection of grease interceptors and that the 35 cities do not inspect regularly. As a result, a large percentage of the restaurant grease in the 35 cities reaches the treatment plant. Thus, of the 115,000 pounds of grease received at the treatment plant daily, the 926 pounds which are now retained by grease interceptors in the County would increase the ppm content of the influent to the plant from 115 to 116 ppm, if interceptors were eliminated. Elimination of interceptors within the 35 cities should not radically increase this figure, possibly 1 to 2 ppm more. At any rate, both figures will be within experimental error and should not affect the treatment plant.

Cost Data

An investigation of this type would not be complete without some cost figures. Here the cost of interceptors and their installation, the cost of grease-trap maintenance and inspection, and the cost of sewer maintenance, all must be considered. At the present time the cost installed of the average interceptor is around $350. Thus the grease interceptors in the 463 kitchens would represent a capital expenditure of $161,050. This amount of money, considering a 20-year life of the interceptor and money worth 3%, is worth in the neighborhood of $10,825 per year.

In the year 1949-1950, roughly 180 man-days were spent by the County Engineer's Department on maintenance inspections. This amount of time cost the County Engineer $2,750. This then is a second expense of grease interceptors.

A third expense is the cost of cleaning the interceptor. Since, however, this is not regularly done, and since it can be argued that the help to clean the interceptor has to be hired for other duties anyway, we will consider this figured to be zero.

Balanced against this figure of $10,825 + 2,750 = $13,500 as the yearly cost of grease interceptors in the County we have to balance the cost of the added sewer cleaning that might result if interceptors were eliminated. The cost of added sewer cleaning is rather a difficult figure to arrive at. Reports indicate that grease is a factor in the cleaning of lines, as indicated by our count of 78 partial and complete stoppages due to grease. There is also the fact that grease will contribute to other types of stoppages because of its ability to act as a binder for other materials. I believe we have sufficient data on hand, however, to now draw conclusions in regard to restaurant grease. We know that in the past 20 years there have been 12 possible stoppages due to restaurants and 11 of these 12 are definitely attributable to restaurants. Of the 11, six have occurred from restaurants already having grease interceptors. It is also known that of 47 restaurants that need grease interceptors according to code, none have actually caused any trouble. Using these facts as a basis, it can be concluded that where we have had about one stoppage in the public sewer every two years for the past 20 years definitely caused by a restaurant, elimination of grease interceptors should not radically change this figure and the cost of added sewer cleaning will nowhere near reach the figure of $13,500.

Summary of Both Reports

1. There is no actual need for grease control in the average-size restaurant on public sewerage systems because of the minor hazard of grease stoppages inside the property or in the main-line sewer.

2. Garbage-grinder units, properly placed, eliminate the necessity for grease interceptors in any size restaurant.

3. Little effect may be anticipated on sewage-treatment plants because of the small increase of grease due to the non-requirement of interceptors in restaurants.

4. The health nuisances presented by grease-interceptor odors and overflows in restaurants would be avoided if interceptors were not used.

Conclusions

It is not necessary for the majority of restaurants on public sewerage systems to install grease interceptors. Grease traps may be necessary in certain isolated cases where special installation problems exist.

Existing ordinance requirements should be reviewed with the following points in mind:

1. Restaurants with a seating capacity up to and including 150 should not be required to have grease interceptors.

The seating capacity is estimated as follows:

(a) If the entire space that can be used for serving meals is occupied by tables or by a counter or both, each ordinary table shall be considered as having a capacity for two, and each counter having fixed stools in front of each 2 feet or less of length shall be considered as having a capacity of one for each 2 feet of length.

(b) If any practicable space that can be used for serving meals is not occupied by tables or a counter, such space shall be considered as having a capacity of one person for each 15 square feet of floor area.

(c) For drive-in eating places, the frontage where cars can be parked for service shall be considered as having a capacity of three for each 8 feet of frontage.

It has been found that 97% of the restaurants in Los Angeles have a seating capacity of 150 or less.

2. The department having jurisdiction will review plans of all restaurants with a capacity over 150 and determine if grease traps are necessary. An interceptor may not be required, even in places with a seating capacity of over 150, if the average flow in the main-line sewer is large enough. In any event, grease traps will not be necessary if approved garbage grinders are properly installed.

3. When grease traps are required, consideration should be given to their proper placing in restaurant plumbing design. As an example, they should not be required on machine dishwashers, and they must be placed so as to facilitate regular cleaning.

In closing we would like to give credit to C. L. Senn, Engineer-Director, Bureau of Sanitation, Los Angeles City Health Department, and C. E. Arnold, Los Angeles County Engineer, for making this report possible; and to Donald F. Grant, R.S., and Arthur Brandt, R.S., who collected the field data for the City of Los Angeles.

Urban Land Institute Appoints New Director

APPOINTMENT of Max S. Wehrly as Executive Director of the Urban Land Institute has been announced by ULI President Philip W. Kniskern, of Philadelphia. Mr. Wehrly succeeds Seward H. Mott, Director for the past seven years, who is returning to the private practice of land planning.

For the past five years, Mr. Wehrly has been Assistant Director of the Institute, which is an independent national organization in the field of urban planning and development, with offices in Washington, D. C. He is a graduate of Pennsylvania and Harvard Universities, and before coming with the Institute was the city planner of the National Capital Park and Planning Commission. Mr. Wehrly has been associated in an advisory capacity with a number of public and private agencies, including the United States Chamber of Commerce, National Security Resources Board, Bureau of Census, and Urban Research Division of HHFA. He is also Chairman of the Arlington County, Va., Planning Commission.

Parked while the drivers proceeded with the lunch test is the equipment of volunteer fire companies which came from six adjacent counties. The number of persons served, with a minimum of delay, was 944.

Utica Shows What Civil Defense Is All About

Is Your Town Ready?

THE ONEIDA County (N. Y.) mutual-aid and civil-defense plan, outlined in THE AMERICAN CITY for April 1951 from material furnished by the plan's head, Utica Fire Chief Leo Barry, was given a major test on May 26. Around 400 teams mobilized at prearranged "check points." Response at one of these points is shown in the accompanying photographs, where apparatus has gathered from places 30 to 40 miles distant, en route to the "bomb burst" at Utica, N. Y.

An alert in Utica, sounded at 9:12 a.m., galvanized nearly every civil-defense organization in the county, and started fire engines rolling from as far north as the St. Lawrence River. Volunteer firemen poured into the city from seven counties. They came in convoys of six or eight pieces. Radiological and rescue equipment was included, as well as ambulances, hearses, and wreckers. One convoy at Rome, N. Y., stretched for a mile. Sirens sounded in hundreds of central New York villages. Along lower Broad Street, Utica, some 40,000 feet of fire hose were laid to fight smoke-potted "fires." Two radiological teams with detection equipment and two-way radio for report of findings, cruised the attack area.

The picture at the top of this page shows firemen and defense volunteers gathered as refugees at Procter High School. Thirty women served lunch to 944 people within an hour and a quarter, although, in the original plans, the school had been prepared to serve only 500.

Equipment from 30 to 40 miles away, en route to the "emergency" in Utica.

Have You Adequate Air-Raid Sirens?

IT IS surprising, and too grim for amusement, how many municipal officials in writing or speaking of their towns, call them No. 1 bomb targets or close to that bracket. Yet, in comparatively few instances does this exciting position evoke determined action of the first class. Philadelphia, Pa., in THE AMERICAN CITY for May, and Utica, N. Y., on this page, shout the ghastly story of "Why Civil Defense?"

After an attack, every piece of equipment you and your county, and maybe half the state, possess, may be needed to extinguish fires, rescue and treat, move debris, and restore utility service. Before an attack adequate air-raid signals are the only devices of any value at all. Too many reports have it that the municipalities are waiting for the Federal Government to buy or help buy the sirens and other civil-defense firsts for them. A wiser viewpoint would be, "It's our city, us people, let's get ourselves unquestionably alerted if need be, no matter what Uncle Sam does or doesn't."

On a little card of individual-action instructions to Air Force personnel there is this footnote:

REMEMBER THE LARGE CASUALTIES IN JAPAN RESULTED FROM FAILURE TO PROVIDE AIR-RAID WARNING AND FROM LACK OF ORGANIZATION.

The capitals are Air Force, not ours.

By JOHN J. S. MEAD *

When a Rural Community Turns to Planning

WHAT generally happens when a rural community turns to planning is this. Some business or lower caliber residential growth has occurred in parts of a locality previously devoted to higher development. The town reluctantly decides that some regulation is needed and appoints a citizens' committee, which in turn recommends the employment of an expert to draw a zoning ordinance. Such experts are generally city planners. The ordinance may or may not fit the town, but it does stop the indiscriminate placing of commercial and small-lot development. There generally is strong local opposition to the adoption of this ordinance, but the increasing frequency of the evils which first bring up the question sooner or later make its passage necessary.

The zoning ordinance may be accompanied by a building code. If not, it comes later. Somewhere in this procedure comes the adoption of rules concerning the filing of subdivision maps, and the regulation of land subdivision even where maps are not filed.

The Master Plan

Often, especially when the rate of growth is fast, there then comes the effort to adopt a master plan. The work along this line is also under the charge of a group of citizens, known as the Planning Board or by some similar title. Often it is the same group that recommends zoning, and the same group that draws and administers the rules in regard to subdivisions. Because of their lack of time and of a detailed knowledge of the field, the tendency again is to call in experts—the city planners. Highway, sanitary, and water systems are studied, together with population, land use, and the economic structure.

But here the background of the city planners and their inherent love of design may lead them into dreaming up a scheme for the development of the whole town. Highways are laid out. Sewer and water districts are delineated. One definite line of future growth is outlined for the area and all these factors are combined into a master plan—a veritable crystal ball. If the community is developing quickly, and the master plan does not try to do too much, all may be well. But often such plans are too extensive and attempt to look too far ahead. As a result, they either hang on the wall and are disregarded or, if followed strictly, the town is put into a straitjacket which may prevent normal growth in a different direction.

And yet completely unregulated growth will impair real-estate values, blight future growth, encourage tax defaults, force the redoing at increased expense of many things done thoughtlessly or in ignorance, and result in conditions which are unhealthy or even unsafe.

Rural planning requires its own approach and planning personnel big enough to adjust their operations to the raw material at hand.

The first step is to study the past as a guide to the future. Studies of the history of land development of the town and surrounding area; population —its size, distribution, and rate of growth; the economic base and land uses; local topography; transportation, highway, and public utility development; public facilities and school growth and needs; and the study of local finances—these combine to give a picture of the past and present trends which form the background for all planning work.

The body of policies derived from the reservoir of information created by these basic studies forms the best master plan a town can have. It lacks the rigidity of the plan hung on the wall. But from it the governing body of the town can determine the degree of regulation which can best eliminate the worst of the abuses and still leave the flexibility inherent in an undeveloped area. The decision on this point will dictate the form of the zoning ordinance, building code, and subdivision regulations. Then come the questions of design of highways, intersections, parks and parking areas, shopping centers, and like items as the need for each develops.

Lewisboro's Experience

The writer has had intimate contact for the last eighteen years with planning activities of the Town of Lewisboro, a rural community in the northeast corner of Westchester County, New York. We do not claim to have reached the perfect solution to these problems. But we have benefited from a growing experience with them. To two of the problems, particularly, we have devoted considerable thought.

One field is the control of land subdivision. The first planning activity in the town was the drawing of subdivision regulations. They were followed later by a zoning ordinance, and still later by a building code. But Section 280 of the Town Law of New York has caused us great difficulty. As originally drawn, the section stated that no permit could be issued for a building not having frontage on a road or street on the official town map. The apparent purpose was to force the filing of a map before any building could be

PLANNING, starting in the cities, has spread to the country. But country planners have found they have new problems, and that the tools of city planning, and of the planners, have to be adapted to the circumstances of their localities.

* Mr. Mead is a member of the Planning Board of the Town of Lewisboro, N. Y.; Chairman of the Northern Westchester Joint Planning Committee; and a member of the Westchester County Planning Commission.

erected which did not front on such a street. The preparation and filing of a map was an item of expense which in many instances could not be justified, and resulted in hardship from increased assessments and rigidity of the plan so filed. Analysis convinced us such a degree of control was unnecessary except in relatively few cases.

Yet the law could not be discriminately applied. So our town was largely instrumental in obtaining an amendment to the law, the present 280a, whereby the Town Board could declare an open area or areas in the town in which permits could be granted for back lots under rules of the Planning Board. Our Town Board declared the whole town an open area, and we set up simple requirements for the issuance of such permits. Even when we set them up, we wondered if these rules had not swung us too far the other way, and experience has confirmed that impression. But we gained the necessary time for a more thorough study of the problem.

As a result, we have now worked out and are about to put into effect a set of regulations under which a permit may be sought for the erection of a structure on a lot not abutting on a street or highway now on the official map of the town in one of three ways: (The first two are under the old statute, the third is new.)

1. By adding to the official nap by the filing of a map of a new street in the Office of the County Clerk after approval by the Town Planning Board, which approval is granted under the Subdivision Regulations. Portions of these regulations may be waived by the Planning Board.
2. Applicable only where the circumstances do not require the structure to be related to existing or proposed streets or highways, by applying to the Zoning Board of Appeals for a permit under a showing of practical difficulty or unnecessary hardship.
3. Under the Open Area Regulations, permits for structures on back lots can be issued directly by the Building Inspector if the circumstances are simple; or the matter can be referred to the Planning Board if more complicated. The Board can use such regulations as it finds fit the case, even to requiring full compliance with the subdivision regulations. We feel that with these rules, we have a flexible solution for a fluid situation.

Area Zoning

The other field to which we have devoted much thought is that of area zoning. To understand our problem requires some knowledge of our town.

We are a small, rural town with about 25 square miles of area and a present-day population of about 3,000 people. The best available population studies forecast no more than a doubling of that population in the next 20 years. We have no incorporated villages. Leaving out waste areas, and zoning the rest of the town with small business areas and residence zones from 50-foot lots up through a one-acre zone as we presently will have done, the town would have room to house over 40,000 people. Our original ordinance, adopted

in the 1930's, put most of the town in the one-acre residential zone. The thought was that small-lot development would find plenty of room in the other area residence zones, and the large holdings would be protected from a spread of the blight of small-lot growth spotted indiscriminately throughout the town. Unfortunately, the one-acre parcel has been, economically speaking, still a small lot although we thought it would not be.

The Large Landowner

Consider now the plight of the large landowner, of whom we have many. Prior to 1930 it was possible to hold large tracts in non-productive use. But that has since become increasingly difficult because of the increase in income, estate, and local land taxes. But if our large holders, as a class, try to break up their holdings into small lots, they find that the prospective market for the next 20 years cannot begin to absorb their holdings. If they try to cut their land up into intermediate-sized parcels, they find their market blighted by spotted small-lot development. The eventual answer is tax defaults by the large owners. The slack so created must be taken up by the small holders. This in turn makes the load of the latter unbearable. Thus protection of the large holder, so that he can gradually reduce his holdings, is essential to the welfare of the small owner.

Since the adoption of our ordinance, other municipalities have created zones of two, four and even five acres. We have been watching these developments, and the recent cases in the courts which have upheld these new area zones.† We feel that our original idea of limiting small-lot growth to certain areas where there will be plenty of space is the proper solution. But just what a small lot is and what size lot we must impose on the larger owner without making it impossible for him to move his land at all, are problems to which we must find the answer. For the information on which these decisions must be made, we are turning to the basic studies referred to earlier in this article—the studies of the history of land development, population, lands uses, transportation, highways, and the like. These studies are now being made for us by the Northern Westchester Joint Planning Program in which we are a participating municipality and which was described in THE AMERICAN CITY for March 1950.

Studies to Be a Guide

These studies are to be our reservoir of information, our key to planning—if not, strictly speaking, a master plan. From them we again hope to find a flexible solution for our fluid situation. Such a process seems, to us, to be the proper way to secure the advantages of planning for a rural area.

† See "Zoning Protection for High-Class Residential Areas," by Norman Williams, Jr., in THE AMERICAN CITY for February 1951, page 129.

Awards for Distinguished Housing Service

THE National Association of Housing Officials has announced two types of awards for distinguished housing service, which will be presented at the Association's annual conference. The first is for individual distinguished service, for persons actively engaged in the field of housing—public or private. The second will consist of NAHO certificates for local authority achievement. The award of these certificates to authorities who have achieved a good reputation in the techniques of housing administration and management will be in three classes: for authorities with not more than 500 low-rent dwellings, for those with from 500 to 2,500, and for those with more than 2,500.

Nominations may be made by an individual, an association, or an agency in the field of housing. They should be sent to the National Association of Housing Officials, 1313 E. 60th St., Chicago 37, Ill., before August 1.

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Combining Recreation With an Airpark

This trim little structure is the administration building for Cabool's new airport.

INSTEAD of accepting the old adage, "you can't combine business with pleasure," the City of Cabool, Mo., is demonstrating that you can—and is doing it by combining recreation facilities with its airpark. In 1947, Mayor Jordan Lindsey, members of the Kiwanis Club, and other civic-minded Cabool men began to consolidate their ideas for a municipal airpark and recreational area. Cabool and the surrounding area have long been known as the dairy, poultry, and playground section of the Ozarks, and facilities for reaching and leaving the area by air were needed. The airpark's future potential, from an aeronautical standpoint, is to serve the needs of the whole south central Missouri area.

Cabool operates its own water, sewer, and electrical-power distribution systems for its approximately 1,100 people. The city is in the center of the productive agricultural area of the state and is the shipping point for products in that area.

To further this project, the city decided that it would take advantage of available state and federal assistance. The state assistance was provided by the Missouri Memorial Airfield Act, and federal aid by the Federal Airport Act. The Aviation Section of the Missouri State Division of Resources and Development administers the Act for the state, and the Civil Aeronautics Administration is the controlling agency for the Federal Airport Act. After several meetings and conferences, the exact scope of the work to be undertaken was immediately decided upon, and my engineering firm, Russell & Axon, of St. Louis, directed to prepare final plans and specifications. The immediate project, consisting of clearing and grubbing the airport area; grading and seeding; and the construction of drainage structures, wind cone, boundary markers, parking area, fence traffic indicators, segmented circle, and administration building, was submitted to and selected by the agencies for inclusion in their programs. Notice of the tentative allocation of funds was received from the CAA and $10,000 was obtained from the state.

By HERBERT C. WOLF
Russell & Axon
Consulting Engineers
St. Louis, Mo.

A brief word about procedures under the two assistance acts is pertinent. Upon completion of the plans and specifications, a project application is submitted with the plans and specifications along with all approvals of state and local planning boards, or bodies interested in the construction of the project. The State Board of Health was interested in this project because of water supply and sewage disposal for the administration building. The city council was the local governing and planning agency.

When the project application and plans and specifications are approved by the CAA and the Missouri State Division of Revenue, the project can then be advertised for bids, and bids received for the work. The recommendation for award of contract is reviewed by the CAA and permission given to award the contract to the successful bidder. The grant agreement is then executed between the city and the CAA for the allowable project costs that the CAA will pay. The main features in dealing with the CAA for the benefits under the Federal Airport Act is that the sponsor, in developing the project, is primarily responsible for (1) adherence to standard policies and procedures as established and approved by the CAA; (2) furnishing to the administrator a listing of the various classes of labor to be employed in construction work; (3) advertising of bids; (4) opening bids; (5) awarding contracts; (6) supervision of construction; (7) payments to the contractor, and (8) securing compliance with the Act and regulation and all its parts, all construction contracts, and the plans and the specifications.

World War II Memorial

The Missouri Memorial Airfield Act was an act to provide airfields as memorials to those who died while serving in the armed forces of the United States in the war against Japan, Germany, and their allies, and to promote the advancement of aviation. Each city qualified under the act is appropriated $10,000 toward an airport-development program. Requirements of the state act are very similar to those of the federal act, ex-

cept that no project funds can be used for the construction of hangars, shops, or living quarters. The state requires that the airport should include: (1) aircraft-refueling services and telephone; (2) approved-type airport marker including a wind sleeve and a free-swinging wind tee or tetrahedron which can be manually operated; (3) aircraft tie-down facilities (at least five sets properly installed and maintained); (4) approved-type boundary markers; (5) fencing where required, and (6) where water supplies and sewerage facilities are proposed, that the plans be approved by the State Division of Health. The state requirements further provide that nothing is intended to interfere with or supplement the airport regulations under the Federal Airport Act. The State Memorial Act specifically authorizes the city to receive federal grants in addition to other grants or funds made available.

Site

The mention of the Ozarks gives a hint as to the first problem encountered, that of finding a suitable site. However, a suitable site was located approximately 1 mile from the city, and, on September 4, 1947, this was purchased for the airpark and other recreational purposes. The Ozarks do not afford many sites because of their ruggedness, but the site selected was a good one, inasmuch as level terrain was provided along with railways and highway facilities. The engineers were then called to complete a contour survey of the site and prepare the preliminary plans.

Completed Construction

The construction to date consists of the air strip, which is 2,300 feet long, 200 feet wide, has a turf surface, and is marked with the proper boundary marks. The area surrounding the strip has been cleared so that there are no obstructions within the flight angle. It is necessary to take drainage across the runway, and this drainage is handled by a double 36-by-22-inch pipe conduit. The administration building is approximately 40 feet by 25 feet and is constructed of concrete block. Provisions were made so that the building can be covered with a brick veneer at a later date. There is a gravel parking area in front of the administration building. The water line was constructed by force-account from the end of the city water main. Electric power was also extended to the site in the same way by city force-account. Sewage facilities at the present time included the necessary sewer lines and septic tank.

The first phase of the completed work was the clearing, grubbing, grading, drainage, parking area, and fencing work. This portion of the work cost approximately $15,000. At the same time a contract was also let for construction of the administration building. The cost of the building was approximately $15,000.

Water was brought in by a transmission main connecting with the city system. This was built by contract, with the city supplying the material. The power line to the site was constructed by city force-account; seeding of the airport site also was a city force-account item.

The next large step the city is contemplating is the construction of the swimming pool. We hope that it will be completed for the next season. Regulation hard- and soft-ball diamonds, tennis courts, horseshoe courts, and picnic tables are also being planned. Of these, one regulation diamond is now completed.

New Municipal Statutes Adopted in State of Iowa

IOWA cities and towns will start operating this month under a number of new laws designed to simplify administration and give a greater measure of home rule. Adopted by the 1951 legislature and effective July 4, the new status will remove many conflicting, overlapping and confusing sections of the state code relating to municipal government.

Major changes will have the following effects:

- Ease budget-making and tax procedure by sharply reducing the number of funds under which cities and towns now operate, and by giving councils more latitude in spending budgeted funds.
- Simplify special assessment procedure for public improvements.
- Shift election dates from March or April of either even or odd-numbered years, depending on the municipality, to November of odd-numbered years in all cases (State elections in Iowa are in November of even-numbered years).
- Provide optional two- or four-year terms for elective officials, except that four-year terms will continue in force for cities having council-manager government by popular election.
- Shift the fiscal year in all cases to provide uniformity.

These and other revisions of laws pertaining to cities and towns were made on the recommendation of a municipal-statutes study committee authorized by the 1949 legislature. The committee worked closely with the League of Iowa Municipalities and such special municipal groups as finance officers, engineers, mayors, and city managers.

When the 1951 legislature convened, the committee gained introduction of 27 bills to effect its recommendations. Some were defeated or died without action, but 13 principal ones were enacted without many changes. The committee found that the 1950 code contained 2,700 sections dealing with municipal officials or municipalities. They had been enacted over a period of 100 years, without any concerted attempt to bring them together into one part of the code or to eliminate contradictory ones.

Successive legislatures had often enacted special laws for particular cities, evading a constitutional ban on naming such cities by referring to their approximate populations. Part of the committee's work was to bring together and make available to all municipalities, legislation which had proven of benefit to one city or a class of cities, such as those under special charter or council-manager government.

J. C. Nichols Awards Announced by Urban Land Institute

THREE prizes totaling $1,000 will be awarded to university students during the coming year by the J. C. Nichols Foundation of the Urban Land Institute, Washington, D. C. The awards have been announced by Richard J. Seltzer, Philadelphia, Chairman of the Foundation, which was recently established as a memorial to the late J. C. Nichols, of Kansas City, Mo., dean of progressive land developers.

Prizes of $500, $300, and $200 will be awarded to university students submitting the three best essays on some aspect of the general subject, "The Improvement and Development of Community Life in the United States." Awards are open to upperclassmen (Juniors and Seniors), graduate students, and students in the professional schools of specified American colleges and universities.

The Foundation committee plans to designate a different college or university each year as sponsor of the award. Students of that institution will be eligible for the awards for that year, and the sponsoring institution will conduct the contest, submitting its recommendations to the Foundation committee for final decisions.

The University of Kansas City has been selected by the Foundation as the first sponsor.

Emergency Medical Care

If disaster strikes

PREPAREDNESS PLANNING for atomic attack on a large city assumes that at least 100,000 will be killed or injured, and that the figure may go as high as 500,000 or more. Two atomic bombs killed over 100,000 and injured nearly as many in Nagasaki and Hiroshima. Had proper medical care been available, it is probable that many of the Japanese who died from burns, as from other causes, might have been saved. Permanent crippling and deformities resulted from improper care of burns and other injuries during the healing process. Many deaths occurred because medical care was totally disorganized for days after the atomic blasts.

Much of the worth of the emergency medical service will depend on whether casualties can be reached promptly. The organization for the job will, at best, be large, many-branched, and loosely controlled. Disaster peculiarities will shuffle parts of the best-laid plans. But if the job can be done for fire-fighting and rescue, it can also be done for first-aid treatment. It is the most vital of all the defense services.

Yet few cities have tackled this element of civil defense with determination. This article tells "what will be done" in an atomic disaster, *if* the tools and personnel have been assembled and organized. The consequences of, and responsibility for, unpreparedness are inescapable by any city's leaders.

After the Attack

The major premise concerning an enemy attack is that it will deprive the typical American city of all the achievements and products of modern technology. Elevators will be without power. Roads will be impassable. Subways and buses will not run. There will be no public water supply. Toilets will not flush. These primitive conditions set the stage for emergency medical care in the critical period immediately after a disaster, during which thousands of lives can and must be saved. The unprecedented problems to be faced demand uniformity of supplies, training, and emergency-treatment procedures and patterns among medical practitioners and volunteers. Routine peacetime practice cannot be employed.

First-aid stations will be set up in concentric rings around each disaster area. They by-pass the earliest injured encountered, and go to the innermost rubble-free streets to establish location and operation. Stretcher bearers working out of the aid stations will fan out promptly within their zones of operation, make contact with rescue crews, and begin the orderly movement of injured into the aid station. Both rescue workers and stretcher bearers have practical knowledge of first aid.

Contamination Determined

Radiological-monitoring teams will determine the nature and the extent of contamination; outline the zones of contamination so that tolerance times may be established for the protection of rescue workers, police, firemen, medical corps, and others that may need to enter these areas; provide monitors for all medical stations around the periphery for detection of radioactive materials on clothing and effects of the evacuated personnel, and determine the nature and extent of the contamination of all suspected food supplies, water supplies, and equipment. Each team will have portable means of transmitting information about its findings.

Each first-aid station is completely mobile, using a large truck or bus to carry personnel and supplies to the disaster area. If no suitable building is available, the truck or bus then serves as a first-aid-station quarters.

Control of hemorrhage is done on the spot by rescue workers and stretcher bearers, and patients are either loaded to litters, or as walking casualties led to the operating base where initial shock treatment is given and splints and dressings applied.

Particularly important will be use of large amounts of a salt-citrate solution, given by mouth if a person with a burn is conscious and has no abdominal wound. This has a high degree of effectiveness in the treatment of mild to moderately severe burns and shock. The solution is made by adding to one quart of water about one teaspoon of sodium chloride (salt) and about one-half teaspoon of either sodium citrate or sodium bicarbonate (baking soda).

Application of dry dressings to burns will be standard first-aid procedure. Ideally, these may be in the form of gauze-lined cellulose pads. They may also be large, dry sterile compresses or freshly laundered sheets.

Nerve-gas cases may have to be given artificial respiration and atropine. Persons with severe body-cavity injuries will need special treatment to sustain them for further movement.

First-aid stations are set up to handle 400 to 600 injured in a 24-hour period. Table of organization calls for four autos, two four-stretcher ambulances, 150 litter bearers, and trained teams, including nurses, medical students, dentists, osteopaths, and veterinarians, each team able to operate independently as a satellite of the parent aid station.

Circumstances determine how many physicians are in each aid station. Physicians in a city will have two assignments—one in the vicinity of their residence should they be trapped by disaster in the area, and one or more assignments in the hospital or hospitals with which they are connected.

Treatment Routinized

Emergency treatment by medical personnel and volunteers, of burns, shock, and mechanical injuries is routinized: assembly-line approach is adopted. Physician will sort casualties and diagnose cases requiring prompt movement to surgical hospitals. He will decide that the patient has less than 20% of body surface burned and, therefore, should receive fluids by mouth, while the patient with more burned area needs fluids intravenously. Even at this advanced point, casualty screening is carried on. Only those with a fair chance for recovery are treated; others are laid aside and made as comfortable as possible.

All casualties are tagged at the point where they encounter the medical organization, including identification and a

note of treatment received. The location of the case at the time of the blast, as indicated on the tag, among other things identifies the radiation casualty, subject to evacuation after transportation becomes available. Symbols are also marked on patients with skin pencil, indicating need for priority treatment, to facilitate sorting at hospital.

Chain of Evacuation

Patients not requiring hospital care go through the forwarding section of the aid station, and from there either to private homes or to a welfare shelter. The transfer of seriously injured from aid stations to their ultimate destination is sometimes in stages, with patients moved from one aid station to another further back, until an ambulance-loading post is reached. The overflow of injured slated for medical care outside of the city will pass through holding stations set up at various exit points of the city. Waterborne transportation may be extensively used.

A critical link in the chain of evacuation is the communication net, which ties the aid stations at the scene of the disaster with the ambulances, district health offices, various control centers, hospitals, and clearing stations.

Those hospitals still existing after the disaster bordering the target area must have adjacent first-aid station facilities to help provide for the great numbers of casualties which they will receive.

Hospital Expansion

At all hospitals remaining undevastated, cots and stand-by equipment are brought out for use in predesignated floor spaces. However, "intramural" increases of hospital beds will be limited, and satellites of parent hospitals such as "hospital annexes" and "emergency improvised hospitals" will be necessary. A large portion of general hospital-care facilities will be destroyed because of their typical concentration in many cities.

Hospital annexes in suitable public or other buildings in the close neighborhood of a hospital will be used as organized shelters to accommodate the regular patients who will be displaced from hospital beds after a catastrophe, until other arrangements can be made for them.

Emergency improvised hospitals will also be organized by teams from existing parent hospitals. School buildings will be used primarily for such hospitals because they are uniformly distributed throughout a metropolitan area, are usually not more than one or two stories in height, often have kitchen

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Emergency Medical Planning for the Unprecedented and Unknown

THE CITY must assume responsibility for medical service after a catastrophe, as it assumes responsibility for all other major functions of civil defense. Its health department and district health organization will provide the framework for the first-aid-station system. Its hospitals will be the focal points of medical-care facilities in war as in peace. Medical defense against atomic disaster is an exercise in preventive medicine of incalculable magnitude. It must become an essential part of organized community efforts in health protection.

The degree of pre-planned medical protection in each city for any potential disaster depends, ultimately, on how much the citizens are willing to pay for such "insurance." Conceivably, too large a percentage of urban productive output could be devoted solely to planning for survival. The issues must be brought before the people for their consideration; they are too large to be decided by any one man or group of men acting alone.

There is no precedent for the type of situation faced today. Value judgments must be made at every step of the planning process, and by both health administrators and individual physicians, even after an atomic disaster. The medical-emergency agency of each city must review its geographic and demographic characteristics, assess its resources and reserves in manpower, its provisions and potentialities in physical facilities, and in equipment and supplies.

Unknown Elements

The variety of unknown elements is appalling. At what hour of the day will catastrophe strike? At what season of the year? Will a wily enemy use atomic weapons alone? Will it be an air burst? An underwater burst? A ground burst? A combination of all three? To be exploded at once, or at intervals over a period of time? On one city, or a group of cities? Does he plan to contaminate our cities with radioactive dust or to use chemical or biological warfare agents? How many bombs will there be and what type? Will there be a warning period sufficient for evacuation? Or will there be none of these things unless we strike first?

Plans for emergency medical care must, obviously, be based on hypothesis. They must be periodically reviewed. A commonly accepted hypothesis for a medical emergency program in some cities, is that two air bursts of an atom bomb with some assumed magnitude would be exploded within a short period of time. Though the radiation effects of a ground-surface burst or underwater burst would be far more deadly, such types of burst destroy a smaller area. It is thought that a potential enemy would be more interested in maximum destructiveness of buildings and people, assuming he has a choice of delivery methods for his atomic weapons. But this may be discounting unduly the importance of harbor installations, more complete surprise, and psychological terror.

Many civil-defense organizations now minimize the radiation hazards of atomic attack — concentrating on the necessity of caring for large numbers of severe-burn casualties, and the enormous number of fractures, contusions, glass cuts, abrasions, etc., which would result from secondary-blast injuries. But it is true that in Japan some 15% to 20% of the deaths were caused solely by nuclear radiation.

Authorities reason that severe radiation symptoms in the majority of those not killed outright do not ordinarily come on until several days after the acute exposure. Therefore, those suffering from burns and mechanical injuries have priority demand on the emergency facilities.

However, radiological-monitoring teams and other special-weapons defense units concerned with chemical and bacteriological detection and decontamination must have an important role in the city's over-all health and medical-care organization.

EDITOR'S NOTE: In the preparation of the article above, THE AMERICAN CITY found especially useful the speeches by Dr. Marcus D. Kogel, Commissioner, New York City Department of Hospitals, and Dr. Herman E. Hilleboe, Commissioner, New York State Department of Health, before the State Medical Society in Buffalo, May 1951. These are reproduced in full in the July issue of the *New York State Medical Journal*.

For local use and distribution on emergency medical care and organization, local officials will find helpful:

Health Services and Special Weapons Defense, published by Federal Civil Defense Administration (reviewed in THE AMERICAN CITY, February 1951, p. 119). 260 pp. Available for 60 cents per copy from Superintendent of Documents, Government Printing Office.

Medical Aspects of Atomic Weapons, prepared for the National Security Resources Board by the Department of Defense and the United States Atomic Energy Commission. Revised edition, August 1950. 24 pp. Superintendent of Documents. 10 cents.

In addition to Red Cross and more extensive first-aid training materials, several state civil-defense organizations have produced emergency-treatment manuals. Particularly noteworthy is the 48-page *Guide for Self-Help and Neighbor Help for the Injured*, published by New York State Department of Health for the New York State Civil Defense Commission. Simplified text and illustrations are featured. A 78-page Instructor's Handbook and a flip chart are used for instruction purposes.

Emergency Medical Care

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and other facilities, and have wide stairways and corridors. Large public rooms of remaining hotels, and perhaps other public buildings, may also be used for emergency care. Smaller rooms on upper floors of a hotel may prove useful for use as convalescent hospitals after an immediate post-disaster phase. Tent hospitals are not recommended.

Transfer to Hospitals as Soon as Possible

As soon as possible, patients are transferred to near-by or distant hospitals. Designated as regional reserve hospitals may be convalescent homes, other types of institutions, and hospitals in outlying areas. As soon as possible after the disaster, tuberculosis patients, long-term cases, and all but critically ill will be evacuated to other communities.

A considerable backlog of untreated injuries will exist, even after four or five days. Transportation is directed toward congregating types of wounds—burns in some places, injuries of the chest in others, major fractures in others, and so on in order to concentrate and develop specialized care.

There is no specific immediate treatment for radiation injury. Victims of ionizing radiation will require whole blood transfusions until the bone marrow has had time to regenerate and produce blood. If the body is supported for 30 to 45 days and protected from secondary infection, the chances of recovery are good.

Supplies for first-aid stations and hospitals will have to be provided from local sources for the first post-disaster phase, with federal and state reserves of consumable supplies, including blood and blood derivatives, provided later. First-aid supplies are stored by a city at scattered points, preferably near its outskirts. Practical locations are near first-aid personnel collecting points or near truck terminals from which many first-aid mobile station vehicles would be sent.

State-organized supply and assignment depots from 5 to 10 miles beyond city limits, will help mobilize personnel and supplies for an attacked area.

Role of Red Cross

While the American National Red Cross does not assume responsibility for disaster preparedness and relief in the event of an atomic disaster, the Red Cross organization and local chapters supplement public resources. The Red Cross will aid in voluntary evacuation; medical and nursing aid; food, clothing, and shelter on a mass-care basis during an immediate emergency; communications; transportation; supply and purchase; registration and welfare inquiries, and rehabilitation and training. Each city must work out relationship between civil agencies, the Red Cross, and volunteer groups.

The Red Cross is important in the nationwide blood program. During the first 24 hours only group O donors from mutual-support communities will be bled, and the blood rushed to the attacked area by air, arriving, if possible, in significant amounts within six hours. During the first six hours, patients in danger from shock will receive stocked plasma and blood substitutes, such as dextrin or periston. Beyond the critical period, specific type blood can be administered, but in the first day, thousands of units of group O blood must be available to save the thousands of lives which would be lost if facilities and personnel were to be relegated to the tedious chore of typing, cross-matching, and testing for Rh antigens.

For a catastrophe such as at Hiroshima, a minimum of 250,000 pints of blood will be necessary; 80,000 per week for the first three weeks. Minimum supplies which would be needed for first-aid and life-saving procedures during the first week following an atomic bomb disaster can be estimated on the following basis: for 1,000 casualties, 9.61 tons, at about $21,125.

Highway Zoning and Roadside Protection

By DAVID R. LEVIN
Chief, Land Studies Section
United States Bureau of Public Roads

ZONING has been construed to be legally authorized under the police power of the state, for the purpose of protecting the health, safety, and general welfare of the community. As due process of law protects the individual from the public, so the police power protects the public from the individual. The police power is said to extend to all great public needs. It may be used as an aid of what is sanctioned by usage, or held by the prevailing morality or by a strong and preponderant opinion to be greatly and immediately necessary to the public welfare. But it must be employed merely to *regulate* the use and enjoyment of private property.

Most objective observers will agree that unregulated roadside areas create congestion, obstruct the free circulation of traffic, diminish property values, and frequently endanger the health, safety, and general welfare of both urban and rural communities. Roadside protection, reasonable in extent and effective in application, constitutes one of the great public needs of our time, in the State of Wisconsin as elsewhere. It should not be difficult to qualify the control of the roadsides under the zoning mechanism as a constitutional exercise of the police power.

Land use and setback controls, however, must be reasonable to be sustained under the police power. As long as zoning restricts property rights without compensation, the betterment obtained through it must of necessity be limited and slowly obtained. Some students of the problem may well wonder, therefore, whether zoning, as now available, is not in reality only a secondary weapon that can be used to combat roadside encroachment.

Perhaps roadside zoning *is* a secondary weapon. But it has some striking advantages over other approaches. If it be limited in its application, its only cost is its administration. If its effectiveness be threatened by local partisan pressure, it can be administered at the state level. If roadside zoning perpetuates the status quo because it cannot oust nonconforming uses, a reasonable scheme of amortization may be considered; at least, it prevents roadside encroachments from increasing. If highway zoning, as such, be relatively new to the law, the constitutional foundations of both city and county zoning have been laid so well and so comprehensively as to embrace highway zoning, if properly conceived. If it results in public benefits, it can also generate benefits to individual and abutters.

Highway zoning is in the public interest.

Concluding paragraphs from a 32-page article on "Highway Zoning and Roadside Protection," reprinted from the *Wisconsin Law Review* for March 1951. Available from Wisconsin Law Review, Law School, University of Wisconsin, Madison, Wis. Price, 75 cents.

Ellensburg Manager Post Open

MAYOR H. J. WHITNEY, of Ellensburg, Wash., reports that the position of city manager is open, and that the Ellensburg council wants the vacancy filled by a man with the following items of preparation and experience:

1. University training in municipal administration, with a degree in that field if possible.
2. Special training in municipal and utility accounting.
3. Experience as a city manager.

Toledo Jumps Into Television

• • • *as part of regular public-relations program*

By **RUSSELL BREMER**, *Secretary*
Commission of Publicity and Efficiency
Toledo, Ohio

THE City of Toledo, which for years has publicized municipal affairs through its glamorized *Toledo City Journal* and through local newspapers, has now taken to television to tell its story.

Through the courtesy of WSPD-TV, the Toledo station of the Fort Industry Company, the City of Toledo has 15 minutes once a week in the evening, for presentation of municipal problems and achievements in a program entitled "Your City Reports."

Time Granted as a Public Service to Administration

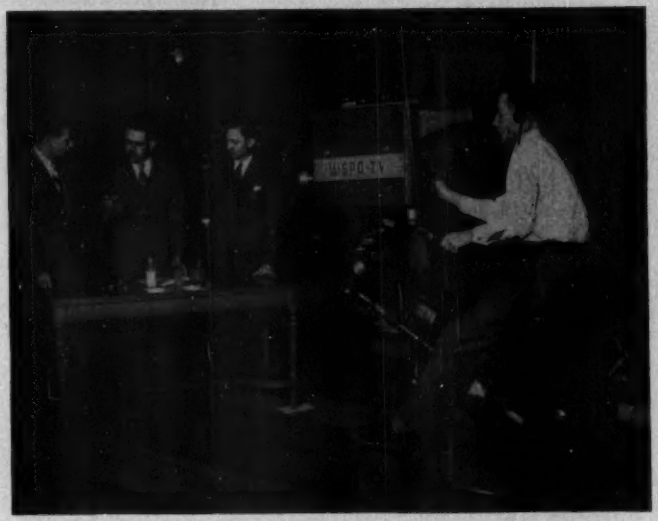
The time was granted by WSPD-TV as a public service to the city administration, which placed the program in the hands of the Toledo Commission of Publicity and Efficiency, a tax-supported wing of the Toledo city government. The Commission prepares the script, and John Saunders, on the station staff, serves as announcer. City Manager Arnold V. Finch was televised several times early in the series.

Plans for a new health center; street-division work and its problems; welfare-department operations; the work of the newly organized housing commission; a new water-works system; off-street-parking problems, and traffic programs have been among the subjects covered.

Department Programs Featured

The programs included talks by officials and question-and-answer sessions enlivened by slides prepared by the Commission. The park program, for example, included pictures of many of the artistic nooks in the city's park system, together with pictures of some of the community houses and play centers. Arthur Gratop, Welfare Director, spoke on the redevelopment of the park system undertaken in the last few years. B. R. MacRitchie, Service Director, appeared on the street program, with his Street Commissioner, Charles Lauber.

Dr. Walter Hartung and Mr. Finch have been interviewed on a program covering the new health center, construction of which is planned for this summer, and Joseph Moore, Director of Civil Defense, and the police and fire glee club have appeared on other programs.



Shown from left to right are: John Saunders, WSPD-TV announcer; Richard R. Henderson, Superintendent of Purification of Toledo water-works system; Burton R. MacRitchie, Service Director of the City of Toledo, under whose general direction the water works operates, and Stanley Morris, TV floor manager.

The water-works program represented a departure from the usual run of programs. A demonstration of an actual city function was presented. Richard Henderson, Chief of the Purification Bureau of the water system, demonstrated how water is cleared of suspended solids by use of alum and lime, and by filtration. Time was given for the chemicals to do their work while the program was swung back to Mr. MacRitchie for his discussion; and the camera was turned back to Mr. Henderson to show by contrasts how the chemicals settled vegetation and other solids in two beakers. The treated water then was poured through a cotton filter. The television view strikingly showed the results of the treatment.

Library Files

The slides that are developed for the television programs are put away in the library files of the Commission under the direction of Donald Bancroft, librarian, to be available for later use with the slide projector, purchased for use at community civic meetings.

These television presentations augment the program of the Commission in research and public-relations work, including the preparation of material for talks that are handled by administrative officials of the city. The *Toledo City Journal*, which carries the legal publications of the city, is so arranged that material printed in the Journal can be used in making up the clerk's record and in printing municipal code material. The *Journal* serves as a public relations and house organ.

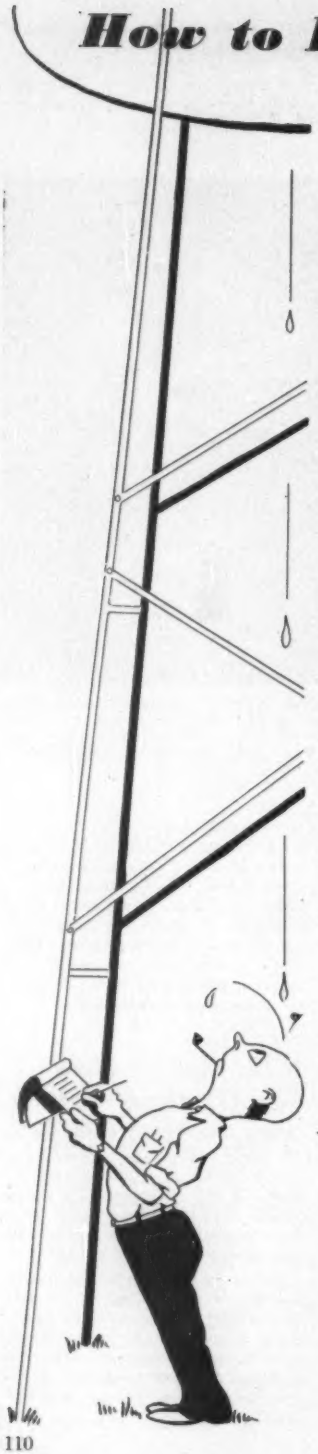
If Chlorine for Pools Goes Off the Market

THE recent National Production Authority ruling may make the use of liquid chlorine in swimming pools difficult. If this is the case, the Illinois Health Department has pointed out to swimming-pool operators in that state two satisfactory alternates.

One is the use of hypochlorite compounds; the other is bromine. At present, hypochlorite apparently is in adequate supply and probably will be available for present anticipated needs. Bromine, also used extensively in Illinois, has met all the tests of that state's health department.

How to Inspect Elevated Tanks

By J. O. JACKSON
Vice-President, Engineering and Research
Pittsburgh-Des Moines Steel Company, Pittsburgh, Pa.



MANY steel water tanks built 50 years ago and more in this country are still in use. Some, not properly maintained, have had to be replaced. Steel water tanks will last as long as they are properly maintained. The relatively thin plates forming a tank may corrode rapidly under certain conditions if maintenance is neglected. The phenomenon of pitting may not be entirely understood, but the protection of tank plates against pitting is understood, and it requires only the maintenance of a protective paint film on the surface of the steel.

The most important part of a successful maintenance program is a thorough annual inspection made by a person competent to recognize situations which are or may become serious. The owner should see that the annual inspection is made by a competent person and that a written report is made, listing important defects. The owner should further see that the defects mentioned in the report are promptly corrected. Steps taken to correct the various defects should be noted on the report for future reference. This procedure will prevent such defects as small rust spots from affecting any appreciable area of the steel, and will add materially to the life of the structure and result in a great reduction in annual maintenance cost. The following general inspection procedure is recommended:

General

1. "Safety First." Be careful while inspecting the structure. Be sure ladders are safe. Do not lean on railings. Do not climb on roof and do not attach lines to parts of the tank until you have found that they are in good condition. Beware of spider rods. The structure may not have been properly cared for and parts may not be safe.

2. Have the tank emptied and have the inside of the shell washed down with a fire hose, and the dirt and mud cleaned out from the tank bottom.

3. The deterioration which you might find will usually have been caused by rust resulting from failure to keep the tank properly painted. Below are various specified items which should be carefully examined. In each case make a careful inspection and advise:

   a. Condition of paint; give approximate percentage of rusted areas.

   b. How much the metal has rusted; give your ideas of length of life remaining in tank.

   c. The extent and depth of pitting; give complete answers. Do not evade questions with such answers as "fair," "needs repairs."

   d. In cases where pitting has occurred, advise whether this pitting is localized in spots that can be repaired or whether the pitting is general, requiring new sheets or structural members. If new material is required, state amount and location.

4. Notify the fire department how long the tank will be out of service. Make special provisions for emergency supplies, if needed.

Inspection Report

The following is a suggested inspection report form which has been developed over many years' use, and which has been found to give good results.

1. Are anchor bolts rusted so as to materially reduce their strength? If so, caliper and record smallest section. If possible, examine carefully where bolts enter concrete.

2. Are anchor-bolt nuts tight?

3. Are column shoes in good condition? Are they clean and painted or has dirt accumulated? If seriously rusted, state where and depth of rust.

4. Are anchor-bolt connections on the standpipes in good condition, or has their strength been materially reduced by rust?

5. Are tower posts in line?

6. Is there any indication of settlement in the foundations?

7. Are tower rods in good adjustment?

8. Are tower rods in good condition? If they are so badly rusted that they reduce the strength, measure the smallest part and report. Be sure to state in what rods this occurs. Examine particularly condition of rods around pins.

9. Are there two cotter pins, well spread in each end of all long pins, and one cotter pin well spread in each upset pin? If rod pins with nuts are used, advise if nuts are on with full thread and the end of the thread well battered. This is important. If cotters come out or nuts drop off, pins may come out with the result that tank bracing will be loosened and the structure may collapse. Examine each pin.

10. Is riser pipe straight?

11. Are riser-pipe stay rods in good condition?

12. Is the frost casing in good condition?

13. Is the frost casing supported by substantial foundation?

14. Are there any indications of leaks

in the riser pipe or the expansion joint?

15. Are there any indications of leaks in tank?

16. Is the ladder safe?

17. Is the balcony safe?

18. Is balcony floor in good condition? State the amount of rust and how much dirt has accumulated.

19. Report any bolts or rivets which are not in place in the splice connections of the tower, struts, and balcony.

20. State condition of paint and metal of tower. Look particularly inside of columns and struts, under lacing bars, at post connections, at strut connections, and at all more or less difficult and concealed places.

21. State condition of paint and metal of outside of tank bottom. Look particularly underneath balcony and post connections.

22. State condition of paint and metal outside of tank shell.

23. State condition of paint and metal on outside of roof and under eaves of roof.

24. Is the finial connection solid or is the roof badly rusted at peak and is there danger of the finial blowing or falling off?

25. Was tank emptied for inspection? If not completely emptied, state how far down.

26. State condition of paint and metal inside of roof.

27. State condition of spider and spider rods.

28. State condition of inside ladder.

29. State condition of paint and metal inside of tank shell. Go over the entire shell. Determine exact condition of metal underneath and the extent of rust and pitting.

30. State condition of paint and metal inside bottom.

31. State condition of paint and metal inside large riser, particularly at the bottom.

32. State condition of rivets at lap joints and at post connections.

33. State condition of metal between rivets at the laps and at the post connections.

34. Examine any valves and advise if leaking. This refers particularly to blow-off valve, if furnished.

35. Is bottom covered with mud or scale, and if so, to what depth?

36. Does outlet pipe stick up above accumulations of scale or are there indications that some of this dirt and scale has entered the outlet pipe?

37. Structure was last painted about .....

Previous to that it was painted about .....

Previous to that it was painted about .....

38. Give a general statement as to condition of structure.

39. List repairs made by inspector.

40. State repairs recommended.

Making the Repairs

The water department, having received the report, will next want to analyze how repairs should be made. If the repairs are minor, the department's own forces probably can take care of them. If the repairs are extensive, the owner may wish to advertise for bids and have the work done by some competent organization. The owner must assume the responsibility for seeing that the organization engaged to do the work will do it conscientiously and at a reasonable price. It is recommended that the owner have this inspection and repairing done in accordance with the Tentative Recommended Practice for Inspecting, Repairing, and Repainting Elevated Steel Water Tanks, Standpipes, and Reservoirs of the American Water Works Association, Specification No. 7H.2-T, latest revision.

Regional Development Council Urges New Defense Communities Agency

A DEFENSE COMMUNITY AGENCY in the Office of Defense Mobilization is needed to promote a strategy of urban decentralization, and to coordinate the location of new industrial plants with the necessary production of housing, public roads, public buildings, and community facilities. This is "the missing factor in the mobilization picture," declares the Regional Development Council of America * in a report released recently.

"This approach is necessary to insure security against air attack and to maximize productivity in new factories," the Council's report points out. "Existing public and private agencies, left to their own devices, will continue to work within a confused pattern that is dangerously obsolete."

The Council recommends that new building be directed into self-contained decentralized industrial towns, surrounded by open land, and limited in population to between 20,000 and 60,000 people. More than 3,000,000 people could theoretically be housed annually in such safe areas, even at the present rate of home building, the Council reports.

Most of the necessary public powers to execute such a program already exist. However, the Council advocates the immediate creation of a National and State Land Holding Corporation with powers of eminent domain, to buy and hold land for such public purposes until local authorities and private developers can take over the task of building. Wherever possible, "federal" towns should be avoided, members of the Council believe.

The Council also recommends the provision of extensive hospital facilities and extra housing accommodations throughout these new communities in case of a major disaster in an adjacent bigger city.

* The Regional Development Council of America, an educational, non-profit organization, consists of a group of men concerned with decentralization problems, active in architecture, engineering, geotechnics, community planning, and related fields. Officers are: President, Clarence S. Stein; vice-presidents, Benton MacKaye, Lewis Mumford, Catherine Bauer Wurster; secretary, Hugh R. Pomeroy; treasurer, Albert Mayer. Headquarters are at 56 West 45th Steet, New York City.

Baby Carriages and Four-Foot Sidewalks—or None

A STRONG case against some current suggestions for reducing pavement and sidewalk widths in the plans for new real-estate subdivisions, is made by Walter H. Blucher, Executive Director of the American Society of Planning Officials, in the May 1951 *News Letter* of that organization. says Mr. Blucher, in part:

When it is suggested that pavement and sidewalk widths be cut, or that sidewalks be eliminated, we think it is time for the municipality and the community planner to take a good look at the suggestion. It was suggested, for instance, that a sidewalk 4 feet in width is adequate, and that it ought to be placed adjacent to a roll curb. We wonder whether those persons making such suggestions have ever tried to push a baby carriage past another baby carriage on a 4-foot sidewalk. We wonder if they realize the danger to a child roller skating or operating a tricycle on a 4-foot sidewalk adjacent to the curb, particularly if the sidewalk is on a grade. We wonder where they expect children to roller skate or ride their tricycles, or mothers to push baby carriages, if there are no sidewalks on a street. What becomes of the sidewalks in northern climates when the snow plow comes down the street in the winter (or do we eliminate the snow plow?) and covers the sidewalk? Or, aren't people entitled to or supposed to use sidewalks in the winter . . .?

We have been for economy and we will continue to urge our members to eliminate waste insofar as possible. Sometimes you eliminate waste by being imaginative. What has been good in the past isn't necessarily that which is good for the future. We can save a good deal of money through the reorganization of the interior street system, through the elimination of alleys, through better site planning, and through proper design and utilization of streets.

I think we ought to keep in mind, however, that if we are designing communities to be occupied by many children we ought to at least make it possible for them to live safely and enjoy life until they reach adulthood.

M unicipal
P ublic
R elations

The City Tells Its Story

By HENRY DAVIS NADIG

Executive Director, Government Public Relations Association

News releases, annual reports, youth day hold MPR media lead in final analysis of survey

AFFIRMATIVE responses in the questionnaire sent out by THE AMERICAN CITY and the Association of Municipal Public Relations Officers to more than 1,200 cities in the United States show the use of news releases to have the highest average—more than 77% of survey responses.

Second most popular medium of MPR is the annual report, with an average of just under 70%, while youth-day programs hold third place with an average of slightly less than 46%.

In their order of preference, by averages of affirmative responses (and including five non-media questions—MPR budget, MPR training, MPR department, departmental MPR, and MPR ordinance) the returns on 26 questions runs from most activity to least, as follows:

	Per Cent
1. Newspaper releases	77.3
2. Annual reports	69.4
3. Youth day	45.7
4. School cooperation	44.3
5. Radio programs	34
6. Citizen meetings	29.6
7. Industrial promotion	29.1
8. Facility tours	24.9
9. Tax leaflets	24.5
10. Other leaflets, posters	24.5
11. Open house	22.7
12. News letter	18.8
13. Newcomer publication	18.1

	Per Cent
14. MPR budget	17.1
15. Opinion surveys	14.7
16. MPR training	14.4
17. Development exhibits	13.4
18. Annexation publication	10.8
19. MPR department	9.8
20. Complaint bureau	9
21. Citizenship awards	7.3
22. Television programs	6.6
23. Films	6.1
24. Departmental MPR	4.2
25. MPR ordinance	2
26. MPR for foreign born	0.7

General Comment on Questionnaire Responses

For purposes of analysis and to spot any special trends, the questionnaire responses were broken down into five population groups: Under 10,000; 10,000 - 25,000; 25,000 - 50,000; 50,000 - 100,000, and 100,000 or more.

Our total percentage response was 32.64, and the largest number of replies came from the first group, cities under 10,000. The fewest responses were received from Group 4 (50,000 - 100,000) while Group 5 (100,000 or more) returned only a few more than did Group 4. Five counties responded.

In making the analysis, no credit was given for Chamber of Commerce activity where it was listed specifically to a question—since that is not an official municipal function. Where sums were listed (under MPR budget) for annual reports, this was counted on the plus side. In cases where a city manager's or mayor's name appeared in connection with the question on MPR department (whole question No. 5 in the survey), no credit was given. Yet where an executive or administrative assistant was named, the question received a plus rating.

The survey generally indicates a steady growth of interest in practical MPR since the first survey three years ago, despite a smaller percentage of response. Because of a variety of factors which may affect MPR in different cities, no cut-and-dried statement can be made as to trends in cities of any particular population group. Nevertheless, the analysis shows what is being done in the responding municipalities and may well point up trends. Definitely, it allows us to suggest a few interesting things and may raise some questions and ideas among city officials.

Group 2

Let's look at the cities in Group 2 (10,000 - 25,000). This group led all the rest in *news releases*, topping the chart with an 81.8% in use of that medium. Yet the same group fell way below the average in *annual reports*—only 55.7%. (How account for this?) It dropped below in *tax leaflets, radio, TV, facility tours, films, opinion surveys, exhibits, open house, complaint bureau* (just a hair below the line), *citizenship awards, MPR department*; it hit well above the line in *MPR training, school cooperation and annexation publications*, and slightly above in *newsletter, other leaflets, industry promotion, newcomer publications, youth day*, and *budget for MPR*. It gave no returns on the questions of *MPR for foreign born, departmental MPR*, and *MPR ordinance*.

To me, Group 2 seems to present at once the greatest field for MPR and the greatest challenge to MPR. Not because it shines in *news releases*; not because it falls so low in *annual reports*, but because the chart of its returns suggests a striving, alert type of city, conscious of the need to activate MPR. The above-the-line questions appear to show a reaching out, a will to get in there and pitch.

The cities in Group 2 well may be worth more attention from all who are engaged in activities intending to advance municipal democracy. Out of the lower population group, but not quite big enough to do all of everything at once, they are beginning to hold their own in the municipal world.

Group 1

A look at the chart shows that even in towns and cities of less than 10,000 there is sufficient MPR activity to put Group 1 above the percentage median in *annual reports, newsletter, news releases* and *opinion surveys*. In a group which obviously registers below the line more than above, these municipalities are third place in *news releases* and *annual reports*, and, quite logically, second place in *newsletter*—an interesting fact considering that Group 4 (50,000 - 100,000) holds top place in this question!

Much good work in MPR is being done in the very small municipalities where alertness in local government capitalizes upon the characteristics and communication potentials peculiar to this group.

Group 3

Cities in the 25,000 - 50,000 group hold one first-place and four second-place percentages. Interestingly, they top the other groups in *MPR for foreign born*, but Groups 1, 2, and 4 registered no responses to this question and Group 5 was a very close second. That gives group 3 a not-too-glamorous first. Seconds were in *youth day, tax leaflets, newcomer publications*, and *citizenship awards*.

While Group 3 registered 14 of the

26 questions above the percentage median, this is hardly a good MPR record for cities in this size-group. Actually, the survey shows, they are making much less use of *TV* than cities in Group 2! And they are far below Groups 1, 2 and 3 in the use of *news releases*.

It would seem that in the case of Group 3 the cities have been unsuccessful in hitting any kind of stride MPR-wise. The fact that they make less use of *news releases* than the cities of the next higher population bracket is a point to be noted and would seem to bear out this thought. A drop in *news releases* in the largest cities (more than 100,000) is to be expected, but in Group 3 it's an indication of bewilderment.

This is evident also from the below-average (fourth place, 40.5%) rank of Group 3 in *school cooperation*, and from the fact that even Group 1 ranks on a par with Group 3 in *facility tours*. It is to be noted particularly that Group 3 shows the lowest percentage of all groups in *MPR budget*—a fact which may indicate the source of much of the apparent apathy and floundering of this group.

From the MPR point of view, Group 3 requires a great deal of educating—of definite clarification on MPR, of understanding about MPR's function in the municipal process. The obvious trials and tribulations through which many cities of this group are passing make their failure to grasp the meaning and practical value of MPR all the more tragic. They are the in-between group, the real MPR problem cities.

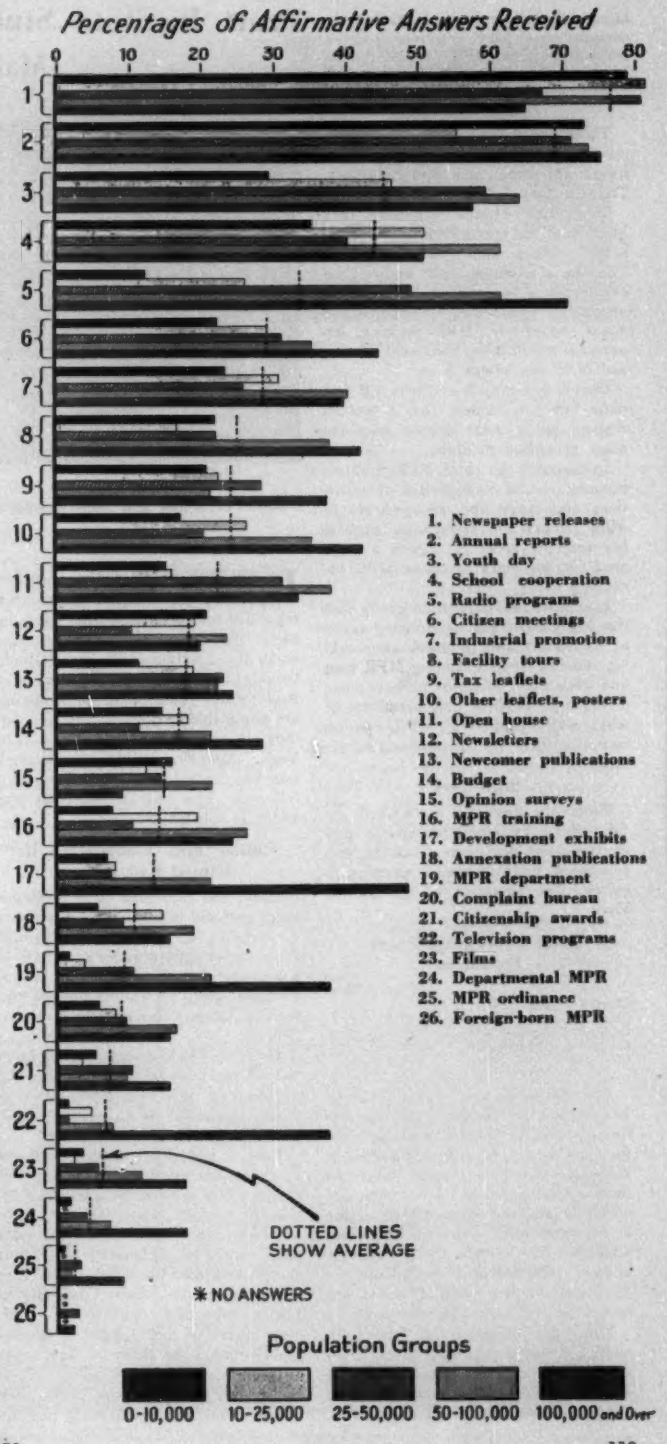
Group 4

Cities of 50,000 - 100,000 are tops in nine responses: *youth day, school cooperation, industry promotion, open house, newsletter, opinion surveys, MPR training, annexation publications,* and *complaint bureau.*

Below-the-line percentages occur with this group only in one question, *tax leaflet.* No response was received from Group 4 in connection with *MPR for foreign born.*

Group 4 is beginning to find itself in MPR and its chart seems to be an encouragingly healthful record of wide activity in telling the city's story. The cities of this group are second only to Group 2 in *news releases* and to Group 5 in *annual reports.* Its radio ranks only 9%, its *facility tours* only 4%, and its *MPR budget* question only 7.5% under group 5.

In Group 4 are many of the important MPR municipalities—cities making a major contribution to the practice and development of MPR. It is apparently in these cities that we find the evenest growth in the use of MPR tech-



niques, the beginnings of greater understanding of MPR functions, and the recognition that MPR is essential to good government.

Group 5

These are the big boys—100,000 or more population. You expect them to have everything and do everything. They do and they don't—not quite.

Tops in 15 of the 26 questions, they hit below the percentage median in *news releases* and *opinion surveys*. They are also below one or more of the other groups in *youth day, school cooperation, industry promotion, open house, newsletter, MPR training, annexation publication, complaint bureau,* and *MPR for foreign born*.

Obviously Group 5 excels in *TV* and *radio* but it is highest, too, in *annual* report and is much higher than the other groups in *exhibits*.

In Group 5 the chief MPR problem becomes one of coordination of activities; and while the group leads in *MPR budget*, the percentage figure is low enough (28.9) to suggest a great need for real work in actual MPR operations.

It is from this population group that the MPR movement is drawing many of its leaders and in which are working some of the outstanding **MPR men** and women and in which we have some of the most brilliant demonstrations of what really purposeful MPR can accomplish when its basic principles are applied.

Summary

From our analysis, we worked out for each of the population groups, percentage-point deviations from the percentage of total affirmative answers received. The summary by groups follows:

Total Percentage-Point Deviation

	Plus	*Minus*
Group 1 (Under 10,000).....	8.9	131.2
Group 2 (10,000– 25,000).....	27.3	91.4
Group 3 (25,000– 50,000).....	59.3	54.4
Group 4 (50,000–100,000).....	210.3	3.1
Group 5 (100,000 or more).....	324.6	7.5

It must be borne in mind that our conclusions are based upon the returns, which, of course, are inadequate for judging trends with real accuracy. Added to this, in any event, would be those undetermined factors of influence which dictate one course of MPR action or another—or no course at all. Such might be, for example, the presence or absence of a university or college, accessibility of radio and TV, and numerous other potential influences.

Municipal officials are invited to query the author regarding the relationship of their city to the general results of the survey and to make any other queries, comments, or suggestions.

Pratt Institute Students Make a City Port Study

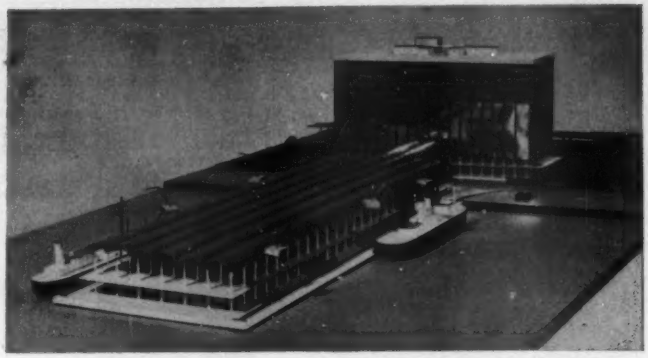


ILLUSTRATION COURTESY OF PRATT INSTITUTE

Model of a pier and transfer unit with its warehousing and light industry.

IN RECENT years studies of urban redevelopment on the super-block repetitive principle have been made by thesis students at the Pratt Institute, under the direction of Professor Olindo Grossi, Chairman of the Department of Architecture. Generally, these studies are applicable in spirit to any city, but they are related more directly to New York. An office building super-block was first undertaken. A housing unit followed. This year a port study was added to this series.

Chaos and Confusion in Almost Every Port

Chaos and confusion exist in almost every port and in the areas immediately surrounding the port as well. This was the point of departure for the study of a port area, undertaken as an undergraduate thesis in architecture by two seniors, Joseph Merz and Raniero Corbelletti.

Since the students were residents of New York and close to the life and problems of their city, they chose to study its harbor as an example, and, perhaps, prototype.

Careful historical-growth and traffic studies of the existing port were made. Charts which showed the relation of the port to market areas, industry, warehousing, railroad lines, and truck routes were prepared. Statistics and port studies, compiled by the New York Port Authority and the World Trade Organizations, were also used. It was at this stage that the first suggestive studies and designs, from which the final study evolved, began to take form.

The suggested solution is a unit which would incorporate many port activities that at present are widely separated and scattered.

In the so-called transfer unit, the enclosed lower floors are used for warehousing of incoming and outgoing raw and finished goods. The upper floors serve for various light industries with space allocated according to need. Both of these areas are kept flexible by the use of interchangeable panels of glass and stainless steel to make it possible to reduce or enlarge the various areas as necessary.

The pier unit, which, like the transfer unit, is an all-reinforced concrete structure, can load and unload four cargo or passenger ships at one time with its mobile gantry cranes. Trucks and trains have direct access to the lower portion of the pier, while the upper floor handles traffic to and from the warehousing and industrial unit beyond.

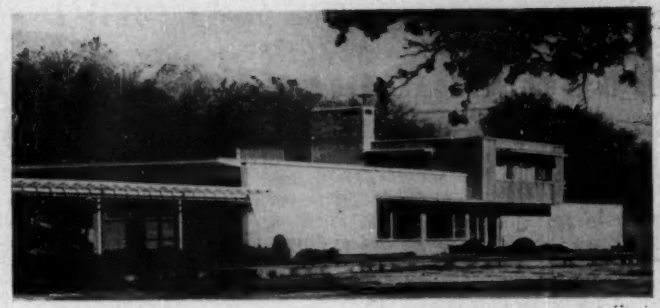
Parking Space

Ships' passengers, as well as workers in both units, have parking space on the second floor of the transfer unit, accessible by ramp from the ground. On this floor of the transfer unit are also located a cafeteria and restaurant, exhibit areas for various goods sold wholesale, buyers' telegraph and telephones, a banking and post-office unit, building and administration offices, and rest rooms.

The entire flexible group is related to a new city pattern of living and of transportation, with commercial offices and living units beyond the express throughways which are planned for commercial and also for non-commercial traffic.

Omaha's Tennis Center

By R. B. McCLINTOCK
Superintendent
Park and Recreation Commission
Omaha, Nebr.



A close-up view of the attractive Dewey Tennis Center building.

BACK in 1944, a group of citizens in Omaha started work on a long-range city improvement plan which embodied all phases of community life and its needs. One section of this plan called for the issuance of bonds in the amount of $1,637,000 for use by the Park and Recreation Commission in the construction and developing of new recreation facilities.

Early in 1947, work was started on the development of the Dewey Tennis Center. This piece of ground was formerly used for eight tennis courts, a softball field, and horseshoe courts. An old residence housed the caretaker, and a small concession stand was used for selling the tickets and concession items.

F. Elwood Allen was secured to plan the new facilities projected for this location. The eight new Grass-Tex courts were lighted, along with the eight horseshoe courts and four concrete tennis tables. We also have three concrete and four clay courts. The work at this center has been completed, at a cost of $167,068.

New Tennis-Center Building

The tennis-center building includes a lounge room, a pro-shop, a snack bar, and toilet and shower facilities. On the second floor is the residence for the center's manager. The concessions are considered a part of his wages. His duties are to look after the public, give lessons, and direct the tennis activities of the Park and Recreation Department. He also works with the Omaha Tennis Association, a group of people interested in the advancement of tennis in Omaha. This organization carries on an extensive youth-training program which is fast bringing results. During the last year 12 of these youngsters held rankings in the Midwest. As a result of activity at the Dewey Tennis Center, tennis is on the boom all over town and the use of the city's tennis facilities are being taxed to the limit.

At the present time the Department has only 22 tennis courts, all of which except four are hard-surfaced. Six new concrete courts were constructed at another location during 1950.

Future Plans

If and when another bond issue is approved by the people for the development of more recreation facilities, another two dozen courts should be included. The plan is for all tennis activity in Omaha to radiate from this particular center, under the direction of the "pro."

Omaha's new tennis courts. Note the floodlights—single A.F. A. 16 Westinghouse fixtures with Alzac aluminum reflectors.

CHARACTERISTICS OF

Good Commercial and Industrial Zoning Districts

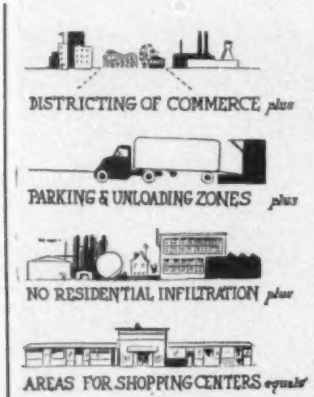
By CHARLES W. BARR
Associate Professor, Urban Planning
Michigan State College
East Lansing, Mich.

MODERN merchandising needs and methods have changed radically. The increased amount of private transportation, plus the resultant demand for more personal convenience and comfort while shopping, has brought about new demands in the form of parking and store grouping. To accommodate the needs of modern commerce, the local zoning ordinance should provide:

1. For a careful districting of commerce in accordance with the character of the neighborhood or area needs.
2. For off-street parking and unloading facilities.
3. For the protection of commerce against residential infiltration.
4. For areas adequate in size and shape to accommodate the modern shopping center.

A simple lumping of all commercial and retail trade into one district classification is no longer desirable or practical. Today, such activities might be broken down into the following generalized groups:

● 1. *The neighborhood shopping center*, where the families within approximately one-half-mile radius can purchase the merchandise commonly needed and personal services such as given by professional people, dry cleaners, and beauty parlors. These centers must have adequate parking areas incorporated as a basic part of the design. Their ultimate size must be carefully considered so that they will be large enough to provide adequately for the needs and yet not expand beyond the basic purpose of servicing the local area. The neighborhood shopping-center regulations should limit the buildings to two stories, and have adequate controls over yard areas and advertising signs to make it harmonize with the residential surroundings. The neighborhood shopping center has proven to be a great asset when designed as a unit by a corporation, but it is difficult to get the same efficiency of design when the area is developed by various individuals. The zoning ordinance must recognize this problem.


DISTRICTING OF COMMERCE plus
PARKING & UNLOADING ZONES plus
NO RESIDENTIAL INFILTRATION plus
AREAS FOR SHOPPING CENTERS equals

● 2. *The central commercial and retail district* is where banks, office buildings, large department stores, and specialty shops are located. In this area the planning commission is faced with the problem of reconciling modern commercial needs with established patterns. Excess traffic and lack of parking space are two basic problems of this central commercial area. The zoning ordinance may require off-street loading space, and even existing buildings can usually be remodeled to add this service; but requiring off-street parking space for the customers deserves careful consideration. Again, although it is not a question of need, what is the best way to accomplish the objective? It is possible to require each new business to provide for such parking, but if this resulted in a checkerboard of stores and parking lots there would be little efficiency for the shopper and a lack of efficiency in land use. Therefore, it is well to provide that the required parking for two or more stores may be combined if the lot is located within 300 feet of the business.

To provide off-street parking and reduce traffic within the central commercial district of the small- and medium-size city, it is desirable to have the parking lots along the perimeter of the district. To assure such a pattern, it has usually been necessary to create publicly owned parking lots. However, the city of Lansing, Mich., has a parking district in its ordinance which permits both public and private parking garages and lots. Such a district classification is worth careful study as it may be combined in some manner with off-street parking requirements. It would certainly add more assurance to the continuation of parking lots created by merchants' associations and other private groups.

● 3. *The heavy-traffic generators*, another district classification, would reasonably include noisy commercial enterprises and those businesses that handle considerable amounts of bulky goods but have a limited amount of direct seller-buyer relationships. Such a district may be called heavy commercial, intensive business, automotive and warehouse district, or by some similar name. These intensive uses include garages, repair shops and other automotive services, amusement arcades, warehouses, and even certain classes of manufacturing such as wholesale bakeries. Such establishments should not be placed among the larger industrial plants, nor do they belong with the ordinary retail stores.

Beyond city boundaries two new zoning problems have arisen; the regional shopping center, and the outdoor movie. The regional shopping center takes considerable capital and coordinated design to be effective. The outdoor movie varies in size and investment, and its future is less assured. It is doubtful if a municipality should zone large acreages for these types of commerce with the hope that they will develop sometime in the future. Too many things can go wrong. The better plan may be to handle such large-scale developments on an amendment basis when definite plans can be used as a basis for action.

The traditional zoning ordinance permitted all uses of the more restricted

Modern Zoning

areas in each successive district, with the result that the heavy industrial area could contain all types of residences, stores, and factories. Today the idea of establishing districts just for residential, or commercial, or industrial purposes is being recognized as a better land-use program. Residences should be excluded from commercial areas because the needs of the two groups of users are different.

Industrial Districts

Industry is the basis of an area's prosperity. It should not be considered the poor member of the family, or given only leftover, undesirable areas in which to locate. Some of the factors discussed for previous districts also apply here, but good industrial zoning should provide:

1. For the classification of industry based on modern manufacturing processes and the prevailing policy of plant construction.
2. For a positive listing of permissive uses, or types of uses, suitable for the location, and with due regard to a metropolitan, or over-all zoning program.
3. For locations between highways and railroads, adjacent to waterways and to sources of industrial water supply, and next to airports for related industries whenever such locations are available. These districts should not form a ribbon along the rivers and railroads, but offer an opportunity for a consolidated grouping.
4. For enough area to permit the modern one-story plant with adequate setbacks and landscaping, parking, and materials-handling space.
5. For the exclusion of residential uses and most retail uses.
6. For off-street parking for employees, and dock areas necessary for the handling of materials.
7. For a clear concept as to the potential use of the land so as not to place the full decision in the hands of the Board of Appeals.

The area zoned for industry should not be too remote from the residential district used by the employees. Special consideration should also be given to the street pattern. Large industries desire a large unplotted acreage, but small tool shops would find such an area wasteful. Therefore, the layout of service streets should be considered carefully by the planning commission in relation to the intended type of industry within that zone.

The zoning mechanism is a positive rather than negative approach to betterment of the urban community. It stimulates the local citizenry to do what is right in the right place, and provides the proper location for all essential services and needs.

AMPRO Changes Name to Government Public Relations Association

GOVERNMENT PUBLIC RELATIONS ASSOCIATION is the new name for the former Association of Municipal Public Relations Officers (AMPRO), as adopted by members of the organization from representative cities throughout the country at the annual meeting held in New York City on June 15.

The name change is in line with a broadening of the organization's membership base to include public-relations personnel in all levels of government. Policy and arrangements for this expansion are now being formulated.

At the meeting, an outstanding address on "Good Public Relations—the Key to the Charter Victory in Philadelphia" was given by Charlton F. Chute, consultant to the Philadelphia Home Rule Charter Commission. Another keynote speaker was J. Stafford Derby, Manager of the New York Bureau of the *Christian Science Monitor*.

Newly elected president of the Government Public Relations Association is Mrs. Lee K. Jaffe, Director of Public Relations, Port of New York Authority, who succeeds David Apter, Public Relations Director of Los Angeles. Vice-presidents are: Alex Pilch, Dearborn, Mich.; David McGuire, Jr., New Orleans; Hank Meyer, Miami Beach, and C. K. Priest, Newport Beach, Calif. Posts for vice-presidents from the federal and state government public-relations fields remain to be filled. Henry Davis Nadig and Eric Carlson, associate editor of THE AMERICAN CITY, co-founders of the Association, continue as executive director and secretary-treasurer, respectively. Headquarters of the organization are at 341 Madison Avenue, Room 301, New York 17, N. Y.

DRAWN FOR THE AMERICAN CITY BY GENE MARRIN

"Don't bother dusting off home plate. Sweep the glass out of center field—it's cutting heck out of our baseball!"

Some special problems: salvage, garbage reduction, grinding, refuse composting, and brush handling

The Elements Of Refuse Collection And Disposal

Part V—Conclusion

By WILLIAM S. FOSTER
Engineering Editor
The American City

WHEREVER refuse-disposal operations take place, the question of salvage is sure to arise. This may come about through ragpickers and others who search the dumps and sell their findings to the junkmen. On open dumps, their presence makes little difference either way, since the open dump is not particularly creditable anyway. In the sanitary landfills, however, these "junkies" are an annoyance more often than not, and have a tendency to tear the fills apart in order to continue their search. Generally, salvage operations should be discouraged around sanitary fills. One should not overlook the fact that fundamentally a sanitary fill is in itself a salvage operation, since, when the ground has received the refuse, and the refuse has decomposed, the resulting ground becomes useful to the community.

Highland Park, Mich., salvage work reduces volume so that residue is substantially less. Above is the picking line; below, the final residue.

Salvage at Incinerators

Occasionally, salvage operations are conducted successfully in connection with incinerators. Here, the salvage operation serves two purposes. It provides a certain amount of revenue to the plant, and it reduces the amount of refuse to handle, often removing a portion that is difficult to burn. Rarely does the revenue itself justify the salvage work. However, when one considers the reduced volume of refuse that must be handled, then the work sometimes is profitable.

Highland Park, Mich., is an excellent example of this.[1] This city has for many years salvaged refuse to reduce the amount that it has to handle. The city is hemmed in by Detroit and must haul its incinerator's residue for a great distance in order to dispose of it. The incinerator handles 60,000 cubic yards of refuse per year. The residue is hauled away in 25-yard Freuhauf trailers, pulled by General Motors tractors.

To reduce the amount of refuse going through the incinerator, J. W. Morehouse, Superintendent, built a belt line and installed pickers to remove glass, tin cans, scrap iron, paper, and rags.

In 1941, the cost of this salvaging amounted to $15,600. The revenue amounted to $15,900, and the reduction in volume of refuse handled amounted to a saving in trucking of $18,650.

In the past, Pittsburgh, Pa., has screened incinerator residue and separated the metal, which was then sold for scrap. The residue passed over a Robins vibrating screen of the "Gyrex" type, that made the separation.[2] The metal content averaged 14% by weight and 50% by volume of the incinerator residue.

The household grinder promises the greatest in disposal-plant revisions.

Already mentioned in previous installments is the salvage operation that takes place at the Atlanta, Ga., incinerator with its two International rotary-kiln-type furnaces. Here, it is the heat that is salvaged, and turned into steam which is then sold to the local power utility. The incinerator steam merely "floats" on the utility steam line and the utility's power plant makes up the difference. The money realized by this sale of steam is paying the capitalized cost of the plant in a 10-year period.

The Atlanta incinerator also salvages tin cans from its residue, as Pittsburgh has done, and makes a comfortable income by doing so. The salvaged metal, removed by a rotating "grizzley" type of screen, goes to a metal-alloy plant.

Garbage Reduction

Frequently discussed, but infrequently used, is the practice of garbage reduction. It often is presented when some civic group decides that an income can be realized from this waste product. However, it requires more work on the part of the people; the organic garbage must be separated from the rest of the trash before the process can work at all satisfactorily. In fact, a picker is generally required to see that metal and glass are removed.

Until recently, Reading, Pa., processed its garbage by cooking it in vats for three hours, extracting grease for soap and glycerine, and also getting an end product that could be used for a fertilizer.[3] The plant was taken out of service in 1950.

Indianapolis, Ind., also processes its garbage.[4] During the war years, the plant sold its grease for seven cents per

pound; sold feed, another by-product, for $20 per ton; and fertilizer, still another by-product, for $6.25 per ton, and made a $42,500 profit over operating costs. When the OPA lifted its controls on the price of grease, this price advanced from 7 cents to 13 cents, and then 17 cents to further increase the profits that the plant realized.

The process needs a reliable source of steam at a reasonable figure. Indianapolis has this source, from the boilers used at the sewage-pumping station. The plant reclaims grease by cooking the garbage. Glass, metal, rags, and paper present the biggest difficulties. If these were not in the garbage, 95% of it would be sold for cattle feed.

The reduction work involves cooking and drying the garbage, thereby disintegrating and sterilizing the solids. About 75% of the income is from grease sales. There is no final residue except for the tin cans, bottle caps, and wire.

In 1945, W. H. Frazier, Superintendent, stated that since the incineration of garbage costs at least $1 to $2 per ton, this plant could operate at a $30,000 to $60,000 annual loss and still be economically sound.

Garbage Grinding

One method of disposing of the garbage or organic portion of the refuse, that is making a definite impression on the public-works field, is that of garbage grinding. This can be done through central grinding stations, or through the household grinders that are being sold as kitchen appliances. Both methods operate on a sound principle—that of employing the hydraulics of the sewer system to transport the garbage rather than using the expense of the collection trucks. At the same time, they have the disadvantage of adding to the strength of the sewage, and, therefore, adding to the sewage-treatment-plant load.

It is on this point that sanitary engineers appear to disagree whenever they discuss grinders as a method of garbage disposal. Some hold to the thought that any polluting material added to the sewage is detrimental, and, therefore, any step that is taken that makes the sewage more difficult to treat should be discouraged.

Others look on the method as an efficient way to handle the garbage and state that even though the garbage is an added pollution load, the means of treating it are available to the engineer and the benefits from a public-health standpoint are enough to outweigh these difficulties.

The station grinders generally do not present these problems so directly. The administering of the garbage to the grinder is under the direct control of the municipal official. It presents a measureable quantity that can be matched against the purifying capacity of his treatment works.

St. Louis, Mo., has such a grinding station, located directly over a large interceptor.[5] The macerating is performed by Jeffrey grinders rated at 20 tons per hour. St. Louis has no sewage-treatment plant, but discharges the raw sewage into the Mississippi River. The Missouri Board of Health has stated, when the grinding station went into action, that the added load would not be great enough to be a factor in the pollution load on the river.

Incidentally, if the grinder is not located at the disposal plant, its location over an interceptor or over a sewer with a flow great enough to absorb the garbage is imperative. The combined garbage-sewage should not have in it so many solids that it causes the mixture to be too thick to flow easily.

Marion, Ind., also has a grinding station, but this is located at its sewage-treatment plant, and uses a Jeffrey grinder rated at 3 tons per hour.[6] In this case, the garbage is not mixed with the sewage, but is pumped directly to the digestion tank. The garbage contributes a substantial portion of sludge, that yields gas when digested. This in turn provides power for the Climax gas engines that pump the sewage and turn the Roots-Connorsville blowers used in the activated-sludge portion of the plant. At one time, the plant placed a value of $1 per ton on garbage delivered to the grinders. This was the figure that the sewage plant had to transfer to the refuse-collection system as a measure of the value the plant gained from the gas generated.

Lansing, Mich., also has a Jeffrey grinder located at its plant, and operates it much in the same way as does the Marion plant.[7] Canton, Ohio, is the city most recently to adopt the station grinders as a method of refuse disposal.[8] Studies made in 1947, by Alvord, Burdick and Howson, Chicago consulting engineers, showed that Canton can make a slight savings in operation by combining garbage with the sewage in a central grinding plant rather than making a separate disposal of the garbage.

Household Grinders

The same control is not possible when the grinders are installed as a household appliance, and this has caused some health officials to be apprehensive. Officials of the New Jersey State Health Department have labeled the grinders a "creeping menace" to the growing problem of stream pollution.[9] The health departments of Idaho,

The garbage-grinding station in St. Louis, Mo., receives the garbage in a pit, pictured above. It is afterwards transferred into the grinder by means of a metal belt.

The Indianapolis, Ind., garbage-reduction plant produces grease, cattle feed, and fertilizer. Pictured above is one of the workmen scooping fertilizer out of the bin.

Kansas, Maine, North Dakota, and Virginia also have expressed concern over the use of the grinders.

However, many other states do not share this apprehension.[10] We have the opinions of health officials from Georgia, Illinois, Louisiana, Maryland, Minnesota, Nebraska, New Hampshire, Ohio, Rhode Island, Texas, and Tennessee, that the grinders are still too expensive to be used generally to the extent that they will warrant concern in the sewerage system.

We have opinions from Florida, Kentucky, Michigan, Oregon, and Rhode Island that an ordinance barring the grinders is impractical, probably more expensive to enforce than the added sewage facilities. We also have opinions from Florida and Kentucky that the grinders are a forward step in environmental sanitation, since they help solve the fly and rat problem by positively destroying a source of food. Florida officials state that if a city can afford grinders on a large scale, it certainly should be able to afford adequate sewage treatment. Oklahoma officials also state that other factors carry far more weight in stream-pollution abatement than the load imposed on the grinders.

The problem seems one of reconciling the sewerage authorities of a community to the acceptance of the grinders. From a refuse-disposal standpoint, authorities agree that they remove from the garbage can the noxious, decaying portion of the refuse that draws flies and creates nuisances, and thus grinders are a factor in bettering environmental sanitation.

Engineering Opinion

At the 1948 Congress of the American Public Works Association, Mark Owen, Indianapolis, Ind., consulting engineer, expressed the opinion that engineers who designed incinerators would have to expect a steadily diminishing portion of garbage in the refuse because of the kitchen grinders.[11] This changes the character of the combined refuse, and might require revision of incinerator design.

A study by municipal officials in the Oakland Bay (Calif.) area of garbage grinders showed that sewer service lines laid at a grade of 0.0208 or more, will carry ground garbage successfully.[12] It also indicated that the garbage solids discharged from a grinder would flow successfully in sewers that provide a velocity of 1½ feet per second or more. Fats and greases, however, need a greater velocity.

Indiana has passed legislation allowing kitchen grinders to be installed by municipalities as a city function, with the grinders to be paid for on a revenue basis through rates established by the town.[13]

Jasper, Ind., was the first city to take advantage of this legislation.[14] The city formerly fed garbage to hogs, but an outbreak of cholera attributed to garbage made the farmers uninterested in the garbage as a hog food. This city of 6,000 population has built a new sewage-treatment plant, making it adequate to handle the garbage load. Mayor Herbert E. Thyen, who was responsible for the step, after conferring with his consulting engineer, established this sort of estimated cost comparison per family per month:

Household grinders	$0.65
Central grinders	1.04
Sanitary landfill	1.27

The figures were based on an assumption of 0.5 pounds of garbage per capita per day, giving an added load of 0.05 pounds of BOD per capita per day, and an added total solids load of 0.12 pounds.

To care for this, the sewage plant was constructed with one added aeration unit, one more digestion tank, and 12,000 square feet more of sludge-drying bed.

Bids were awarded for the grinders installed in kitchen sinks. Bids were offered for the grinders with the water-flow interlock feature separate from the grinders themselves. The water-flow interlock is a type of switch that automatically turns the grinder on when the cold water faucet is opened. The use of cold water is expected to congeal the grease in the garbage and prevent the grease from clogging the house service lines or city sewers.

The grinders were tested with one pound of green beans run through without water, and one pound of ordinary garbage run through with water in the usual way.

The city anticipated having to pay for the grinders over a period of years, but in most cases the public paid cash for the grinders so that bonds were not necessary. Their cost came to around $85 in place, or about half the cost that an individual would have to pay were he to purchase the grinders separately.

Garbage Decomposition

Periodically, someone proposes that garbage be decomposed into a soil conditioner and offered for sale for that purpose, rather than be burned in an incinerator or buried in a sanitary landfill. A number of years ago Scarsdale, N. Y., tried, and then abandoned, the Beccari process which was supposed to operate on that principle. More recently, Miami, Fla., took steps to adopt a similar method known as the Verdier process.[15] However, this also had to be abandoned.

Paper salvage is often a thrifty activity at incinerators.

The Miami proposal anticipated receiving mixed refuse, excluding metal, grinding it so that it would all pass a No. 4 screen, and putting it in concrete cells where it would decompose in much the same manner as a high-rate compost cell decomposes leaves and grasses. The cells would have been 10 feet square with "chimneys" in the corners and the center, with holes in the sides so that air could be introduced and circulated through the refuse. This was supposed to have reduced the refuse to a black, earthy mass by aerobic action, aided by the recirculation of the juices that drain away.

A private company was to have operated the process. Miami expected to pay the company $390,000 per year to take and dispose of all its refuse. The company planned to sell the composted material for fertilizer. The program was abandoned when the financial backers withdrew support.

Brush disposal offers one of the most annoying of the special problems that a refuse-disposal crew must handle.

(*Continued on page* 151)

QUALITY STREETS PAY DIVIDENDS

Huron, Ohio, paved its residential streets with concrete 25 years ago, paid bonds in 10 years, still enjoys low street-maintenance costs that are expected to continue

Huron's Center Street, shown here, has been giving good service since 1927, and is expected to continue giving good service until 1977, if not later.

By W. W. HENKELMAN
Village Engineer
Huron, Ohio

THE people of Huron have grown used to answering the question: "How can a town of 2,500 people support such an outstanding system of concrete streets?"

Their answer is simple enough—"We built them almost a quarter of a century ago, and they have long since paid for themselves."

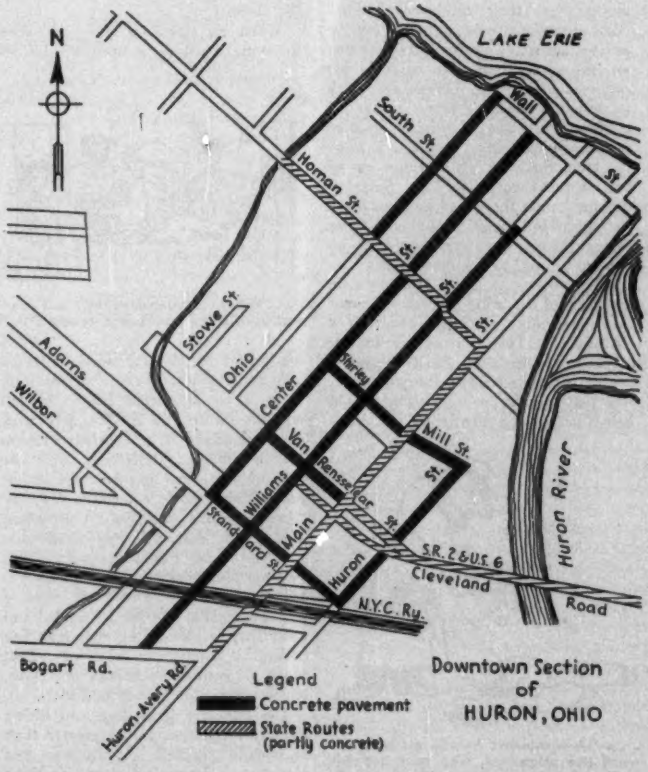
When the citizens of Huron decided back in 1924 to try concrete pavement for Center Street, it was to be a kind of "field test" to see how concrete pavement would stand up under traffic and all types of weather conditions, and what it would cost to maintain.

After two years, Center Street's concrete pavement had served so satisfactorily that concrete was placed on seven more streets in 1927. The job was financed by a bond issue voted by the town council. The bonds were paid off 10 years later, and the streets are still paying off in first-class, maintenance-free service.

The public strongly favored concrete from the start. In 1926, the preference was so decided that not even a referendum was considered necessary. In this same year, one of the village's ex-councilmen staked his political career on his recommendation of a "Pave the whole town with concrete" program. He won hands down.

My former employer, the late C. A. Judson, started the paving work as Village Engineer, and I continued it as his successor. Streets paved were all of 7-inch thickness, except for one of 6 inches, which carried lighter traffic loads.

We paved the entire width of the pavement at one time. The pavements were hand-finished. We used a home-made device on the pavements that I've never seen before or since. It consisted of a 4-inch iron pipe, 16 feet long, made into a roller which was pulled transversely across the pavement by ropes. Four men were required to operate it. Our iron roller was a forerunner of the longitudinal "bull" float used in modern paving practice. All of the streets were cured by ponding them for 21 days before allowing the water to evaporate.



The quarter-century-old paving project covered the streets marked in black.

Does the Public Appreciate Its Parking Service?

By WILLIAM KALLIAN
Owner, Park-Rite Garage
Los Angeles, Calif.

MR. and Mrs. Average Car-Owner, who leave their car in a parking garage or lot, have a rather indifferent attitude toward the parking attendant. Their idea that no special skill is needed to park their car makes the selection and maintaining of efficient attendants extremely difficult.

The public seems to belive that every parking lot is a "big outfit" and, therefore, carries unlimited insurance covering everything. The operators do have some liability insurance and insurance covering fire and theft, and most companies have their employees bonded. Some occasional customers are unscrupulous and try to establish the fact that an old scratch or dent in their car occurred on the lot. Others are quick to point an accusing finger at the attendant when they suddenly discover a pair of gloves or an umbrella is missing from their car. Nine times out of ten, it turns out that Aunt Susie or the maid wore the gloves and borrowed the umbrella to go shopping. These things always upset and worry the attendant as well as the managment.

There seems to be a reluctance in the back of the mind of each customer to leaving his "precious" car with a "stranger." This fear often unconsciously asserts itself in a somewhat hostile attitude toward the attendant, who may get the feeling that he is not being properly appreciated. To illustrate my point, take for example the hotel bell hop. He carries a guest's suitcase up to his room and is cheerfully given a tip ranging from 25 cents to a dollar. The parking attendant seldom gets any tip. He parks a $3,000 car for a fee of 20 cents an hour, and this fee is often grudgingly handed over, especially when 10 minutes on the second hour has gone by and 40 cents is due.

. . . "A somewhat hostile attitude toward the attendant, who may get the feeling he is not appreciated . . ."

When a lot is "fast-moving" and large enough to warrant two or more attendants on duty to handle the volume of traffic, many problems arise. One is reconciling the amount of money turned in at the close of the shift with the number and value of the tickets used. Who shall be blamed for the shortage and who shall make up the deficit?

When an attendant does not show up some morning to open his lot for one reason or another, much confusion and harm result. Often a person with little or no experience has to be put on that lot to run it. He may park cars belonging to the regular customers in different stalls and bury the cars of short-time parkers way in the back. Then, oddly enough, a few customers, quickly sizing up the attendant as a "green" man, will try to evade paying for the day's parking, stating, "I'll pay you tomorrow because all I have is this twenty," or, "That's all right, I pay the regular guy by the week," and away they go before the poor man can collect his thoughts or the money. That night, of course, he checks out short, which only adds to his bewilderment.

. . . "When an attendant does not show up, confusion and harm result . . ."

The difficulty in finding and hiring parking employees is far greater than is usually realized. Appearance and honesty are foremost factors. To these add the good use of language. Prompt and courteous attention to the customer is the next most important thing. There are many men and women who are *more interested in their car* than in anything else when it is being parked by somebody else. It must never be forgotten that the public judges the parking industry by the attendant who parks and *watches over his car!*

A new attendant "may bury the cars of short-time parkers way in the back . . ."

No big problems of employee personnel presented themselves in the beginning of the parking industry because the operators themselves worked and managed the parking lots. Very soon, however, after concentrated parking in the big cities brought about combinations of two or more lots under one management, hired help was needed to operate the lots. I have compared notes with the operators of parking lots in Los Angeles, San Francisco, Chicago, Detroit, New York, and other thickly populated cities from coast to coast. I have chatted with the employees and listened to *their* troubles. The picture is pretty much the same all over. The greatest problem of all confronting operators is where to find capable parking attendants. Only a few make a career of parking cars. Those who do tend to stay on with the same company year after year. Regardless of a man's apparent ability, references should be required and investigated as soon as possible.

The need for increased service cannot be ignored. We, in the parking industry, need the help and support of city planners and officials in working out the solution to the congestion in the downtown areas.

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Fighting Civil-Defense Apathy

Rochester tackles the biggest problem of a city civil-defense director

By LOUIS B. CARTWRIGHT *
City Manager and Director of Civil Defense
Rochester, N. Y.

LACKING the spur of an actual attack or a state of war and immediate imminence of a bombing, public apathy and indifference have been widespread — and naturally so. Our people have been through civil-defense campaigning before, during the Second World War. They had listened to countless hours of propaganda, of horror stories, of urging to become members of the Civil Defense Corps. They had joined and had put in countless hours of training, even at the expense of being ridiculed by a fair proportion of their friends; and then nothing happened. The I-told-you-so's had their day; and many of our people shrugged their shoulders and said to themselves—"Once I'm a sucker—never again."

This attitude has been a real threat to the organization of nearly all protective measures in the present emergency, for which thousands of sincere volunteers are greatly needed.

Dramatizing the Appeal for Volunteers

Administrators in public service know that public opinion and public confidence are tricky things. They can be won, but not forced. The administrator who fails to win them, fails completely. Knowing this, we in Rochester proceeded to the problem of enrolling volunteers.

Civil-defense leaders in the various fields show that a definite, concrete, and widely inclusive plan of recruitment was the only solution to our problem. Sporadic appeals at meetings, and unorganized publicity on the radio and in the press, failed to do the job of interesting anywhere near the necessary number of volunteers.

Because of divided opinions, civil-defense authorities in Rochester were at first reluctant to use modern promotional and advertising methods to combat this situation. After a year's work, the divisions of civil defense that depended 100% on volunteers, were still far short of the requirements outlined by the state Civil Defense Commission.

The advice of experts was finally sought, and their recommendations were unanimous. Forceful, vigorous, even spectacular methods had to be used to dramatize the appeals for volunteers.

This program was approved and the cooperation of the Advertising Council of Rochester was pledged. This is a recently formed association of advertising interests set up to donate the expert services of its members to civic enterprises.

The services of a leading advertising consultant were then retained to analyze, correlate, and streamline the efforts of the civil-defense organization and the Advertising Council.

A plan was adopted which ignored all of the negative sentiments about methods of recruiting. The first step was to relocate and amplify our central recruiting headquarters. Secondly, consideration was centered on streamlining training courses, so that the hours necessary to attend classes would not be a serious stumbling block in interesting volunteers. Thirdly, once a citizen has indicated an interest, it is our intention to follow this up with the greatest speed we can muster, and to make his full enrollment as simple and convenient as possible. The wardens already enrolled will be useful in this.

Our consulting experts realized that no recruitment campaign could hope for success without coordination of all advertising and promotional mediums. It also was determined that there must be some new method of promoting mass appeal.

60,000 Pamphlets Distributed in the Schools

The keynote of this effort was the preparation of a hard-hitting, dramatic, and spectacular pamphlet with pulse-stirring illustrations. There were 60,000 of these distributed through the public and parochial schools.

The executive staffs of the schools signed letters requesting teachers to acquaint all students with the obvious and important necessity for a volunteer civil-defense organization. Through school assemblies, the children were urged to take the pamphlets home to their parents and ask them to read them carefully and sign an application blank which was a part of the appeal.

Preliminary reports from about three-quarters of the schools, received one

(*Continued on page* 163)

*This article is from a paper presented by Mr. Cartwright at the annual meeting of the New York State Conference of Mayors and Other Municipal Officials, at Niagara Falls, N. Y., June 14, 1951.

THIS TIME IT'S THE CITY OF NACOGDOCHES, TEXAS

Over in the prosperous pine timber and rich agricultural belt of east Texas, the city of Nacogdoches is looking to the future and planning for further growth. New industries locating at this excellent manufacturing and distribution point were in need of more water. To take care of such needs, municipal officials called in Layne and ordered the installation of another deep well and pump unit, —the third since 1925. With this new unit in operation, Nacogdoches now has a greater water supply capacity than is presently needed.

These three Layne installations extending back for more than a quarter century, have had every opportunity of failing,—or showing proof of their wonderful efficiency, extra long life and absolute dependability.

The answer was as usual with all Layne water supply equipment. Congratulations to Nacogdoches for continued use of the world's finest wells and pumps.

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THE THREE LAYNE well water supply units installed for Nacogdoches, were designed, built and installed complete by Layne's own engineers, factory and field crews. All installations were under the rigidly controlled and extraordinarily successful Layne method. Each is staged for the exact requirements of the city's pressure specifications.

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The line of Layne Short Coupled general service pumps is wide enough to include every size, capacity and setting to fulfill any need found in the municipal or industrial field. A new catalog, illustrated with diagrams of practical application of these pumps, will be sent on request.

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WATER SUPPLY
WELLS & PUMPS

Central Purchasing

In Hartford, Conn.

CENTRAL PURCHASING was established in Hartford in 1948, with the adoption of the new charter setting up the council-manager form of city government. The writer was appointed first Purchasing Agent in August 1948, and all materials, supplies, and contractural services are processed by the Division of Purchases and Insurance, except textbooks and scientific supplies and equipment for the Board of Education, which are specifically excluded from Central Purchasing by charter provision. All purchases amounting to $1,000 or over are let on advertised bids.

The staff consists of two buyers, two clerk-stenographers, two clerk-typists, one storekeeper, one stores-ledger clerk, and one "student-buyer in training," assigned to the Division of Hospitals and Institutions for the purchase of perishable foods and medicines. Each girl's assignment is specialized as follows: (1) Advertised Bid Clerk, handling all correspondence from buyers and purchasing agent which pertains to advertised bids; (2) Open Market Sealed Bid Clerk, who handles all correspondence pertaining to such informal sealed bids; (3) Purchasing Order Clerk, who writes all purchase orders and returns bid surety after it has served its purpose; and (4) Information and File Clerk, who handles all incoming and outgoing mail, keeps files up-to-date, and records bids (advertised and open-market-sealed) when opened and read.

Year's Supply Bought Where Possible

A requisitioning schedule has been adopted wherein all departments request a year's supply of all commodities that can be bought on a yearly basis. This has vastly reduced the number of purchase orders and it avoids rehandling the same commodity repetitiously.

All public-improvement contracts, including street paving (over 5½ miles in the fiscal year 1950-1951), new buildings (two new schools and a home for the aged, contracted for in 1950-1951), and major repairs (such as modernization of schools and fire houses, rebuilding of playgrounds), are specified and supervised by the City Engineer. Such contracts are approved by the Awards Committee of City Manager, City Engineer, and the Director of Public Works.

By N. B. HENSON
City Purchasing Agent
Hartford, Conn.

The city charter states that the Purchasing Agent shall establish standard specifications with the approval of the City Manager, and that, when once these standards are approved, non-standard items shall not be purchased. At the request of the Purchasing Agent, the City Manager appointed a Standards Committee consisting of the City Engineer, Director of Public Works, Director of Public Welfare, Superintendent of Schools, and Director of the Budget. While a great number of standard specifications have been adopted, no attempt has been made to standardize on automotive equipment, because each manufacturer is annually improving his product in quality and design, and the Purchasing Agent believes that to adopt standards would prevent the city from benefiting from the research done in this field by competing designers.

Advantages of Standardization

Demonstrating the value of standardization, when the various departments did their own buying, many types of one commodity were bought in small quantities without benefit of quantity discount. In one department alone it was found that five different kinds of paper cups were bought, in three different sizes. After standards were adopted only one kind of each commodity was bought and on competition. Besides quantity discounts, another result of standardization is the reduction in the number of purchase orders issued. Thus, even with the modernized equipment program, the expanding housing projects which necessitated opening of new streets, new construction equipment for the Street Division of Public Works, and extending fire protections — hydrants, fire-alarm cables and boxes, new fire apparatus, additional hose, etc., Hartford has reduced its number of purchase orders by over one-third!

Emergency purchases are a perennial headache for any purchasing agent. The charter premits the head of any department to approve purchases by his staff in specific cases where the efficiency of the department or where the life, health, or safety of the public would suffer, and provides that the transaction be fully recorded with the Purchasing Agent, who is empowered to approve or disapprove the transaction. It is obvious that to keep equipment in running order, many quick purchases should be made. But the great majority of emergency purchases should be only for accidents or unforeseen breakdown of equipment.

No Shortages in Hartford

The alleged shortages in so-called critical materials, real or imagined, have caused only slight concern in Hartford thus far, with the exception of beef and beef products, since June 1, and hog bristles, since May 15. The priority assistance granted governmental agencies (on a par with small business enterprises) by DO-97, PR-2 has not been used up to this writing. However, with its latest amendment NPA has made this assistance of greater value to governmental agencies for procuring material for maintenance, repair, and operation by granting a 20% increase due to advanced cost in 1951 over 1950. We still need some assistance for the purchase of material other than MRO; it is hoped that the new CMP (Controlled Materials Plan) regulations will clarify this situation.

The writer feels that the valuable and detailed assistance given by the National Institute of Governmental Purchasing has made Hartford's problems appreciably lighter. N.I.G.P. maintains its executive offices at 730 Jackson Place, NW., Washington, D. C. (Albert H. Hall, Executive Director), and keeps member agencies well informed on new developments and governmental regulations. All purchasing officials—at state, municipal, county, and village levels—should take steps to get on this valuable mailing list.

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Responsibilities That Local Officials Cannot Avoid

POINTING out that "unless democracy thrives in the local communities where people are close to their governments, it would die out," Carl H. Chatters, Executive Director of the American Municipal Association, addressed the Canadian Federation of Mayors and Municipalities in London, Ont., on June 11, on "Responsibilities of Local Officials in a Democratic Society." From the address delivered to assembled mayors and other city and town officials from all ten of the Canadian provinces, we excerpt a part:

● For the employment of competent, sympathetic employees and their attitude toward the citizens of your city, you and you alone are responsible. You must select the right employees and train them to deal competently and sympathetically with the public. The citizen sees his government in action through the city and town employees. Any tawdry view of democracy at work influences him to distrust his government. Faith in democracy is strengthened by harmonious relations between citizens and public employees.

● The ability of city and town governments to deal with their problems depends on a knowledge of the community and its needs. The public officials of cities and towns must possess intimate knowledge about their communities, and enlighten the citizens about municipal affairs. But city and town officials can't do it alone.

● Local control of most police work in the United States is one of the absolute essentials to the continuance of democracy. In European countries, seizure of control of the police has always been the first step toward control of all government. To surrender the police power to state and federal governments in our country would be to take the most important single step towards the so-called "police state." In Canada the situation is somewhat different. Some small communities have entered into contracts with the Royal Canadian Mounted Police to provide local police services. These contracts, I assume, could be terminated if desirable. But the arrangements appear to have worked out happily for all concerned. I am happy to know, however, that as far as the larger cities and more populous suburban areas are concerned, the police force is entirely under local control and jurisdiction. But, if the police are to continue under local authority, they must be competent, honest, and free. This is your responsibility. The temptation of individual citizens to seek special favors is the first step in demoralizing the police force.

● The conducting of elections is still in the hands of local governments throughout the United States. Election officials are usually selected in the wards and precincts of the cities. They count the votes; they report the votes to a central place. With rare exceptions, the local government is responsible for the maintenance of honest elections—on which so much depends in democratic government.

● We casually think that our personal liberties depend on constitutions, supreme courts, and other remote and nebulous powers. But the personal liberties of the individual citizen, 99 times out of 100, are guaranteed to him by the public authorities in the place where he lives. If he is denied freedom of speech, it is denied him by action or inaction of local authorities. Some few people can appeal to the state, provincial, or federal courts for the protection of their personal rights. The rank and file of people, however, depend upon local-government officials for the protection of whatever personal liberties are accorded them.

● The impartial enforcement of all laws is one important symbol of democracy. If we believe in democracy, then we believe in equal application of the law to rich and poor, to black and white, and to every citizen regardless of his status. In your country and mine, as in few others, even the public officials may be called to account for their private as well as their public acts. They are not, and should not be, immune from the law. Impartial enforcement of law depends on local police and local judges—people whom you know and elect.

"The tasks for which you alone are responsible have been enumerated," concluded Mr. Chatters. "These duties are yours and no one else's. They are the things that most directly affect the personal lives of most people. Their execution places on you as public officials an almost terrifying responsibility. I know you cannot be conquered by fear. Neither must you permit apathy or indifference to rule. To be true to your democratic beliefs you must live up to the high responsibilities which your citizens have entrusted to you."

Municipal Clerks Hold Annual Conference

Participants in the Fifth Annual Conference of Municipal Clerks: Left to right, Frederick M. Cook, John B. Hynes, Arthur J. Shinners, and Walter J. Malloy.

ARTHUR J. SHINNERS, town clerk of Brookline, Mass., was unanimously re-elected president at the fifth annual conference of the National Institute of Municipal Clerks, in Boston, May 21-25.

The conference was attended by 244 clerks, recorders, and secretaries from 38 states. Plans were approved to have the Institute maintain offices in Chicago, with necessary arrangements left in the hands of the president. The organization now has a membership of 525 clerks.

Among the key speakers at the conference were Austin J. Tobin, executive director, Port of New York Authority, who spoke on the importance of municipal public relations; and David M. Wood, of New York, who spoke on "The Function of the Municipal Clerk in the Issuance of Municipal Bonds."

Other speakers included Governor Paul A. Dever, of Massachusetts; Mayor John B. Hynes, of Boston, former city clerk and an honorary member of the Institute; Mayor Edward A. Crane, of Cambridge; Hon. Edward A. Counihan, of the Supreme Judicial Court; Reuben L. Lurie, chairman, Brookline Board of Selectmen; and Carl H. Chatters, executive director, American Municipal Association.

Vice-presidents of the Institute are: Mrs. Irma F. Bitner, City Recorder, Salt Lake City; Joseph L. Richardson, City Clerk, Atlanta; Stanley J. Witkowski, City Clerk, Milwaukee; Mrs. Marie K. Filarski, City Clerk, Kalamazoo, and Edward J. Rock, Village Clerk, Floral Park, N. Y. Other trustees are: Earle M. Simon, City Clerk, Oklahoma City; John R. McGrath, Clerk, Board of Supervisors, San Francisco; Mrs. Ida H. M. Rogalsky, City Clerk, Tonawanda, N. Y.; Miss Evangeline Justice, City Clerk, Portsmouth, Ohio. Chairman of the Advisory Committee is Gladys E. Menzer, City Clerk of Oneida, N. Y.

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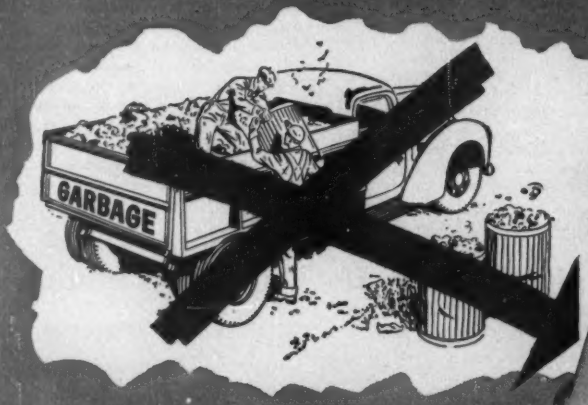

"CAN AND WAGON" GARBAGE COLLECTION SYSTEM BEING ABANDONED!

Progressive civic officials all over the country are getting the facts concerning the many advantages offered in Hotpoint's Municipal Plan of Food-Waste Disposal. Documented reports from modern communities, where the "can and wagon" garbage collection system has been abandoned, prove the benefits which accrue under the Hotpoint Plan.

If you would like to provide your community with a modern, sanitary, economical way of disposing of food-waste before it becomes garbage—and with all the added advantages listed below—Hotpoint will gladly present the whole story of its Municipal Plan. It's based on experience and written specifically for municipal officials.

- *A convenient, new and modern food-waste removal system.*
- *Health protection to the members of all families.*
- *Fly and rat pest reduction.*
- *Garbage collection cost reduction.*
- *More digester gas for use and sale.*
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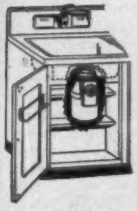
- *Elimination of food-waste before it becomes garbage.*
- *Elimination of alley garbage can.*
- *Elimination of garbage collection problems.*
- *Elimination of garbage odors.*
- *True sanitation for your town.*



The Hotpoint Disposall® food-waste disposer is easy to install in any sink . . . convenient . . . safe . . . odorless and economical. Simple to operate . . . keeps kitchens, sinks and hands clean. Does not overload or clog sewer systems. Can also be used with septic tank.

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Hotpoint Inc.
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5600 West Taylor Street, Chicago 44, Illinois

Zoning and Planning Notes

Edited by NORMAN WILLIAMS, JR.

Public Housing Projects On Vacant Land

MARYLAND. *Becket* v. *Housing Authority of Baltimore City*, reported in Monthly Report of Housing Authority of Baltimore City, November 1950 (Baltimore Circuit Court, Nov. 20, 1950).

The current low-rent housing program of the Baltimore Housing Authority includes 1,500 dwelling units on three vacant sites, two near the south edge of the city and one in the northeastern section. A local "improvement association" and two couples living near the proposed project in the northeast brought an action to enjoin the Authority and the city from building the three projects, from granting public money in connection with the projects, and from granting any tax reductions thereon. In support of their action, the plaintiffs alleged:

1. That there was no need for more public housing in Baltimore, because of the volume of private construction and the "Baltimore Plan" for enforcing existing tenement-house laws—and that in fact overbuilding threatened a collapse of real-estate values.
2. That the tenants in existing public-housing projects are largely persons of middle income, instead of persons of "low income" for whom the projects were supposedly provided.
3. That the state-enabling act for public housing did not authorize the use of vacant land.

The Housing Authority's procedure for determining persons of "low income" was reviewed in detail at the trial. In particular, an accountant testifying for plaintiffs offered statistics based on unadjusted individual Maryland state-income-tax returns, in an attempt to show that the median family income in Baltimore was below the top income-limit for eligibility for public housing. The Housing Authority replied that the figures offered were meaningless without a series of complex readjustments, and showed that the 1949 United States sample census of incomes in Baltimore indicated very different conclusions. The chief law-enforcement official explained how expansion of the public-housing program would assist in expansion of the "Baltimore Plan."

In a memorandum opinion, marked by a realistic appreciation of the situation, the Court held:

> It is quite apparent to the Court that the Housing Authority, rather than being arbitrary in determining what are persons of low income in the City of Baltimore (there is no charge that this power has been exercised fraudulently or corruptly), was most meticulous in the manner and means used in reaching its conclusion, and, again, it is not the province of the Court to decide what are low-income families in the City of Baltimore.
>
> It was further quite apparent from the testimony that the units to be erected are quite essential to this community for the purpose of providing decent, safe, and sanitary dwellings without overcrowding, for those persons who lack the necessary income. In fact, it was apparent to the Court that these units will only partially answer what the testimony indicated to be a large continuing need.

The original concept that public housing was primarily a matter of slum clearance has been necessarily modified by the pressure of hard facts. A period of acute housing shortage obviously makes more acute the need for decent inexpensive housing. Yet, in such a period there are obviously severe limitations on the practical possibilities of demolishing existing housing units, no matter how bad; and such a procedure is usually out of the question unless accompanied by the construction of public housing on vacant land, in order to assist relocation. In addition, limitations placed by the federal authorities on the percentage of the total cost which may derive from land cost also force substantial use of vacant land sites, frequently at densities so high as to be undesirable under any other circumstances.

The ruling in this case is of particular interest because various real-estate interests all over the country have been arguing that adoption of the "Baltimore Plan" would make public housing unnecessary in their communities.

Variance from Minimum Lot Size Requirement

RHODE ISLAND. *Petrarca* v. *Zoning Board of Review of City of Warwick*, 80 Atlantic (2d) 156 (Supreme Court, April 6, 1951).

Three dwellings and a garage were built on the extreme four corners of a rectangular plot of land, two-thirds of an acre in area, located in an area which had been developed somewhat haphazardly near the edge of the City of Warwick. Two of the dwellings were located along the street frontage, and the other dwelling and the garage were located in the rear. The owner wanted to build another one-family house on a 6,000-square-foot section along one side of the tract, and sought a variance from the zoning provision requiring street frontage for all buildings and requiring 7,000 square feet for a building in this district. A variance permitted by the Board was challenged by the adjoining landowners. The Court upheld the variance on the ground that enforcement of the zoning regulations in these peculiar circumstances "would result in unnecessary hardship by depriving him (the owner) of all beneficial use of a considerable area of land without advantage of the public interests."

Radio Broadcasting Tower In Residence District

NEW JERSEY. *Wright* v. *Vogt*, 80 Atlantic (2d) 108 (Supreme Court, March 5, 1951).

The RA district regulations in the Borough of Haworth, contained the usual provision permitting accessory buildings and structures, and limited all buildings and structures in that district to 35 feet, except for church steeples, chimneys, and flagpoles. In this case the owner of a plot 75 by 120 feet used an antenna on his roof for an amateur radio station, and wanted to build a 60-foot tower in his rear yard to put it up higher. The Court held that a radio tower should be read into the quoted exceptions to the height limits, on the ground that the structures specifically mentioned were merely examples of a general type, and that the development of radio towers could not be foreseen at the time the ordinance was drafted.

The case involves a basic issue in the development of law—whether, or rather to what extent, statutes or precedents directed at past conditions should be interpreted to extend to new problems, or whether it is wiser to wait for the passage of a new statute specifically covering the point. While the former looks easier, it may result in technical difficulties which will continue to plague the situation.

More specifically, the Court did not really consider whether radio towers would have the same impact on a residence area, in terms of either safety or the appearance ("character") of the area, as a church steeple.

Bathhouse Is Not An "Amusement Park"

NEW JERSEY, *Tice* v. *Borough of Woodcliff Lake*, 78 Atlantic (2d) 825 (Appellate Division, February 13, 1951).

This case involved a proposal to build a public swimming pool, 400 by 85 feet, together with bathhouses and a refreshment stand, and to equip open areas near by for picnicking. A building permit refused, on the grounds that zoning regulations forbade an "amusement park," along with a circus. This refusal was reversed in court, on the ground that—

> "an essential attribute of an 'amusement park' is the grouping together in one place of various amusements for pleasurable diversion. . . . The attribute is not present here. Actually only one amusement was planned. The facilities for picnicking and refreshment were clearly to be provided, not as amusements of themselves, but as incidents to enhance the attraction of the pool to members of the public enjoying swimming as a pastime."

As the Court indicated here, restrictions on various amusement establishments had better be specifically worded with some care. Amusement parks are properly subject to severe restrictions. However, public swimming pools, driving ranges, renting of small boats, and similar open amusement establishments are often permitted somewhat more widely; and a court is not likely to invoke a restriction on these unless they are specifically mentioned. Apparently the Borough has since amended the ordinance to do this.

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Legal Notes and Decisions

Prepared by NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS
Charles S. Rhyne, General Counsel

Airports—Operation of by City—Corporate and Not Governmental Function

In action against city to recover damages for destruction of plaintiff's airplane, allegedly caused by defendant's negligence at municipal airport, held that city, in furnishing parking space, tie down, and fueling service for airplanes, was operating airport as private corporation, and not as governmental function. *Brummett v. City of Jackson*, 51 So. (2d) 59 (Miss., March 12, 1951).

Assault and Battery—Power of City To Adopt Ordinance Upheld

Where appellant was convicted of violating city ordinance defining assault and battery and appellant alleged lack of authority of city to enact such ordinance upon which charge against him was brought, held that both conviction and ordinance were valid under constitutional provisions giving municipalities right to adopt and enforce local police and similar regulations, so long as such ordinance did not conflict with general laws of the state. *City of Dayton v. Miller*, 97 N.E. (2d) 58 (Ohio App., April 15, 1951).

Barbershops—Restriction on Hours Of Operation Invalid

In action challenging validity of city ordinance restricting barbershop hours, held that such ordinance was void as it was unreasonable regulation and not one for protecting public against spread of communicable diseases or other valid exercise of police power. *City of Miami et al. v. Shell's Super Store, Inc.*, 50 So. (2d) 883 (Fla., Feb. 23, 1951).

City Employees—Liability of City For Tort of Garbage-Truck Driver

Where plaintiff brought suit against city to recover for injuries sustained in accident when city's garbage truck struck plaintiff's car, held that since truck had defective brakes and was negligently operated by driver who had no license, city was liable for it was acting both in proprietary function and maintaining nuisance at law or operating instrument dangerous to public. *City of Houston v. Shilling*, 235 S. W. (2d) 929 (Tex. Civ. App., July 27, 1950).

Contracts—City Liable for Breach in Sum Plaintiffs Would Have Made If Allowed to Perform

Where plaintiffs brought action for breach of contract made with city for engineering services on sewage system, and city awarded contract to other engineers after agreeing to performance by plaintiff, held that plaintiffs were entitled to damages for breach in sum of profit they would have made had they been permitted to perform and complete contract. *Jones v. City of Middletown*, 96 N. E. (2d) 799 (Ohio Com. Pleas, Butler Co., Jan. 5, 1948).

Contracts—Impossibility of Performance by Contractor Because of Military Service—Liability of City

Where plaintiff brought action against village for breach of contract of employment as consulting engineer, when plaintiff was placed on active duty by United States Navy, held that failure of plaintiff to obtain permission of Federal Naval Bureau of Personnel to engage in private employment rendered contract impossible to perform and village was not liable. *Goldenberg v. Village of Capitan*, 227 Pac. (2d) 630 (N. M., Feb. 10, 1951).

Gambling—Prosecution for Maintaining House Where Bets Are Taken

Where defendant was convicted for maintaining disorderly house in violation of ordinance of City of Omaha, held that evidence was sufficient to sustain conviction where officer familiar with methods of bookies discovered evidence on premises constituting circumstantial evidence in support of charge. *State v. Kovak*, 45 N. W. (2d) 625 (Neb., Jan. 19, 1951).

Gas—Damages Caused by Explosion In House—Liability of City

Where plaintiff sued city for damages caused by explosion of gas in his home, held that since city did not have exclusive control of lines leading into plaintiff's home doctrine of res ipsa loquitur did not apply and defendant failed to show breach of duty by city. *Henderson et al. v. City of Cross Plains*, 235 S. W. (2d) 936 (Tex. Civ. App., Nov. 3, 1950). *Reh. den.* Feb. 2, 1951.

Gross Receipts Tax—Tax on Public Service Companies Held Invalid

In action by city against Western Union Telegraph Company and Public Service Company of Northern Illinois to enforce city ordinances imposing tax on gross receipts of all electric companies, gas companies, telephone and telegraph companies, held that such ordinances were void as total gross receipts had no relation to amount of space used by wires and poles on city streets by which city sought to levy tax. *City of Chicago Heights v. Public Service Co. of Northern Illinois, City of Chicago Heights v. Western Union Telegraph Co.*, 97 N. E. (2d) 268 (Ill., Jan. 18, 1951). *Reh. den.* March 19, 1951.

Parking Garage—Lease of by City—Necessity for Showing Abuse of Discretion

In action to determine validity of lease entered into between plaintiff and city, held that one attacking validity of such contract or lease must show abuse of discretion and when city acquired fee from private landowner with no restrictions city had right to lease land. *City of Phoenix et al. v. Landrum & Mills Realty Co.*, 227 Pac. (2d) 1011 (Ariz., Feb. 26, 1951).

Playgrounds—Injuries Received in—Liability of City

In action by guardian ad litem for infant plaintiff against city for injuries allegedly received when injured by cardboard spool allegedly thrown at plaintiff in public playground operated and maintained by defendant, held that where playground attendant knew of incident while in progress, and ignored pleas of infant-plaintiff for assistance, whether negligence of city in failing to stop assault caused injuries was question of fact to be determined by jury. *Mandelowitz v. City of New York*, 101 N. Y. S. (2d) 166 (N. Y. App. Div., Dec. 11, 1950).

Policemen—Action by Taxpayer to Enjoin Removal of Police Station—Injunction Denied

In suit to enjoin Police Commissioner from removing police station from certain district in city and eliminating such police district, held that since mayor and city council were not made parties in dispute, taxpayer engaged in business in district involved had no standing which would give him right to maintain action against police commissioner as he is state official. *Phillips v. Ober, Police Commissioner of Baltimore City*, 78 Atl. (2d) 639 (Md., Feb. 8, 1951).

Sewage Disposal—Suit to Prevent Installation in Neighborhood of the Plaintiff

In suit for anticipatory damages and temporary injunction against installation of sewage disposal plant near plaintiff's property, held that no temporary injunction would be granted on assumption that plant's location might cause damage to plaintiff's property as town council had not acted capriciously and arbitrarily and town might not be able to satisfy judgment for anticipatory damages. *Sheffield et al. v. Town of Duncanville et al.*, 236 S. W. (2d) 851 (Tex. Civ. App., Feb. 9, 1951). *Reh. den.* Mar. 9, 1951.

Sidewalks—Parking Sign Causing Injury—Liability of City

Where action was brought against City Council to recover for injuries sustained when plaintiff tripped over parking sign placed near store window, held that evidence sustained jury finding of contributory negligence of plaintiff and if pedestrian could avoid consequences of city's lack of diligence and care of sidewalks, by using ordinary diligence on his part, and he fails to do so, he is precluded from recovering from city. *Glover v. City Council of Augusta*, 63 S. E. (2d) 422 (Ga. App., Feb. 10, 1951).

Streets—Liability for Accidents Caused by Paving Defects—Reasonable Care Required

In action against city to recover for injuries sustained in automobile accident allegedly caused by streetcar rail being two inches higher than brick pavement adjoining such rail, held that recovery would not be allowed as duty of city to keep its streets open, in repair, and free from nuisances required only reasonable degree of care and vigilance, and city could not possibly be held liable for every depression and difference in grade on its streets. *Deckant v. City of Cleveland*, 97 N. E. (2d) 84 (Ohio App., Oct. 25, 1950).

Streets and Sidewalks—Injuries Sustained on—Sufficiency of Evidence to Take to Jury

In action against town to recover for injuries sustained when plaintiff tripped on water-meter box between sidewalk and street curb, held that evidence was insufficient to take case to jury as mere happening of accident or existence of condition which caused injury was insufficient, unless it could be shown that officers of town knew or by ordinary diligence might have discovered defect on street. *Rivers v. Town of Wilson*, 63 S. E. (2d) 544 (N. C., Feb. 28, 1951).

Taxicabs—Authority of City to Fix Minimum Fares

Where plaintiff filed petition against city challenging its power to fix minimum fares for taxicabs in city, held that charter power granted to city to regulate use of streets by taxicabs did not authorize city to fix minimum fares of taxicabs. *McCullough v. City of Springfield*, 236 S. W. (2d) 753 (Mo. App., Feb. 1, 1951).

Taxicabs—Renewal of License—Mandamus to Compel

In proceeding to compel mayor to renew taxicab license, held that since owner of taxicab had admittingly violated municipal code by leasing vehicle to another, solicited and accepted passengers for group riding, failed to use taxi meter, and charged improper rates, and there was no abuse of discretion in failing to renew the license by city authorities, mandamus would not lie to compel issuance of license by mayor. *People ex rel Strozier v. Kennelly, Mayor of the City of Chicago et al.*, 97 N. E. (2d) 126 (Ill. App., Jan. 31, 1951).

Vagrancy—Conviction Under City Ordinance Invalid Because of Inconsistency with Statute

Where appellant was convicted of vagrancy as defined by city ordinance, held that conviction could not stand because of inconsistency between state and city definition of what constitutes vagrant. *City of Huntington v. Salyer*, 63 S. E. (2d) 575 (W. Va., Feb. 13, 1951).

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Joe Prismo outshines them all!

In the field of highway marking, Joe Prismo has always been the brightest boy in his class.

He's always known the most about the scientific subject of reflectivity and has done the most in applying it to center-lines and safety signs for the protection of human life.

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Prismo Binder is engineered to impart a background of brilliance to the myriads of bright rays reflected from the myriads of Prismo Spheres that are crystal clear, glass globes of optical perfection. The greatest glow of longest sustained duration is the identification mark of Prismo markings.

Under a magnifying glass Prismo proves its "Klass" . . . with a capital "K"! The perfect roundness and clarity of "the little Lenses", tells Traffic Engineers that high grade Prismo glass gives maximum optical results when used with Prismo's super tough binder. And in performance, brilliant beams reflecting headlights' gleams, also tell the Traffic Engineer that Prismo has proudly done justice to his choice of Prismo specification in his safety planning.

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Fewer Accidents in Dangerous Times Asked By President's Highway Safety Conference

STEPPING UP a peacetime action program for traffic-accident reduction to meet the urgent needs of national defense, got its start in Washington, D. C., on June 15, 1951, when more than 2,500 delegates to the President's Highway Safety Conference, ending three days' study of the problem, agreed on a course of renewed action. The sessions were largely devoted to reviewing certain elements of the 1949 action program, with emphasis on how to carry out the recommendations.

In presiding at the general session, devoted to promotion of the action program, William F. Devin, Mayor of Seattle and President of the American Municipal Association, declared:

The Kefauver Committee did much to deglamorize crime. We need a similar move to deglamorize the boor of the highway. If we can ever make good driving commendable, and poor driving unpopular, we shall have gone a long way toward licking our problem. As long as people regard traffic regulations as something made to inconvenience and delay them rather than to protect them, we cannot count on a successful action program.

Deploring the fact that only slight gains have been made in collection and use of accident statistics, the Conference agreed that a fundamental weakness is the too-frequent collection of accident data without clear knowledge on how the information is to be used. To remedy this weakness, a resolution was adopted which urges research on accident causes, control of drivers with bad accident records, and engineering design as it is related to accidents.

The three-day conference developed recommendations that:

1. All drivers charged with moving violations be required to appear in person in traffic courts.
2. Legislative action at all levels of government be instituted to increase the strength of law-enforcement agencies in those areas where it is now inadequate to do the job.
3. Police concentrate their efforts against those traffic violations which are causing accidents.
4. Motor-vehicle administrators consider special examinations for drivers of tractor-trailer units and for all bus drivers.
5. All states study their existing traffic laws and take steps to bring them into conformity with model state traffic legislation.
6. Research be carried forward to develop needed facts on personal causes of accidents, and on engineering-design responsibility for accidents.
7. The nation's streets and highways be brought as promptly as possible to a standard and condition consistent with the needs for safe and efficient transportation.
8. Responsibility for school highway-safety programs be vested in one person appointed by school officials.
9. Advertisers be requested to give serious consideration to wider use of television advertising in the promotion of highway safety.
10. The Secretary of Defense be requested to obtain and coordinate the recommendations of the Army, Navy, and Air Force with respect to a uniform policy on the handling of military violators of traffic laws, and submit a suggested policy for cooperation with civilian authorities and traffic courts.
11. Colleges and universities be urged to expand their facilities for the training of technicians in highway engineering, police enforcement, traffic engineering, traffic courts, safety education, centralizing accident records, and motor vehicle administration.
12. Traffic violators responsible for death by auto be sentenced to jail.

At the closing session Federal Civil Defense Administrator Millard Caldwell warned that fire equipment must "get through fast" in the event of an atomic attack, and that "police and rescue teams must get into the damaged area and get the injured out" without jamming the highways. "If you are impressed with the traffic problems in peacetime," he said, "you will be staggered by the requirements if we are attacked. We need your expert thinking, and you share a heavy responsibility at federal, state, and local levels."

The American City **for June 1949 reported Evansville's proposed plan to revise its busy Riverside Drive, a program devised to comply with the ten points of the 1948 President's Highway Safety Conference. Today, right, with parking shifted, the concrete medial islands, and progressive traffic signals, it exemplifies efficiently applied action.**

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VISUAL TROUBLE SIGNAL. When a Park-O-Meter has been jammed or becomes inoperative, the red line shows through coin windows to warn the motorist and to signal the meter Service Attendant.

COIN GATE BLOCK. When a Park-O-Meter is not in working condition, the coin gate is automatically locked and motorist cannot insert a coin. Experience has proved that this feature eliminates 90% of excused tickets.

When you buy PARK-O-METER you buy everything

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Lab wear-test designed to indicate in a few days the results that actual street tests would take one year to determine.

$350,000 Traffic-Paint Bill Leads to Tests by Los Angeles

By JAMES JOSEPH

WITH 5,700 miles of streets, 2,500 of them paved, Los Angeles is one of the largest volume buyers of street-striping, laning, and curb-marking paints among American cities. Yearly it purchases anywhere from 65,000 to 100,000 gallons.

In June, in anticipation of the year's purchase of paint, Los Angeles embarked on a calculated plan to correlate street-wear with a quick-test lab set-up which involves a rotating rubber-tired rig which can give the city's traffic engineering and purchasing departments two to four days to decide which paints stand up and which do not.

Chemical analysis alone will not give an accurate answer to the question of wearability and longevity of street paints. Hence, the Los Angeles Bureau of Standards now analyzes paints which have proved their worth, to find out what made them last. The Bureau also uses a wear-test wheel. Three years ago, paint samples which stood up under 300,000 revolutions of the wheel were considered good enough. Unfortunately, when applied to the street, some of these paints wore away within four or five months. The Bureau of Standards then increased its minimum requirements to 800,000 revolutions. This June, when one year of punishment ended for a selected sampling of paints laid down in a test strip at one of the city's busiest industrial intersections, traffic engineer Ralph T. Dorsey predicted that the revolutions for the test wheel will be upped to perhaps 1,500,000.

"Bids are fine for many other things that a city purchases," says Dorsey, who has been the city's traffic engineer for 30 years, "but they don't work for street paint. We spent $350,000 on paint last year, and we've taken competitive bidding on price out of our specifications. Today, we want bids based on quality, and up to the minimum one-year wearage which we're now asking."

Manufacturers are invited to submit two 1-gallon cans of their product for testing. The labels are removed, each can is coded, and from then on its identity is known only to the purchasing and traffic-engineering departments.

The tests are, first, actual laying down of stripes at a busy intersection for street-wear, and, second, laboratory analyses, including use of the lab test-wheel.

One gallon of the manufacturer's sample goes to the lab for testing the drying time, viscosity, percentage of water, dry or wet opacity (hiding power), daylight reflectance, flexibility (ability to contract or expand), bleeding, and stability.

Drying Time: Coded paint sample is applied to a sampling plate, which is made from lightweight (20-gauge) flexible steel coated with tin. For uniformity and control, a doctor-blade is used to apply a 0.005-inch coating. A lab technician stands by to observe drying time. Samples must be dry to the touch within five to 30 minutes, and must be hard at the end of 50 minutes maximum.

Flexibility: Samples are allowed to dry in the air for 18 hours at room temperature. They are then baked for five hours at 220° F., removed, and cooled at room temperature for 15 minutes. They are then bent over a ½-inch rod (mandrel) to a 180-degree angle. The bending test is a severe one, and determines the flexibility of street paint, with emphasis on its ability to stretch under usage. If cracks show up at the bend, the paint is rejected.

Daylight Reflectance: Either the sample is put under this test before bending, or another sample is used. It is enclosed within a lab-built reflectance-measuring device. The directed and controlled beam of a 500-watt bulb is projected on the sample's surface. A General Electric exposure meter (photographic type), permanently placed directly above the sample and shielded against all but reflected light, gives the amount of light reflected. Samples must reflect a minimum 80% of the projected light, as calibrated from a standard sample of magnesium oxide.

Dry or Wet Capacity: This is a measure of a paint's hiding power.

West Test: Street paint is applied over a paint chart of black and white squares. The paint is carefully weighed before and after the coating to determine its coverage in terms of square feet. This is a visual test.

Dry Test: Paint is applied by doctor-

Wearability of paints is determined ten months after laying down the stripes.

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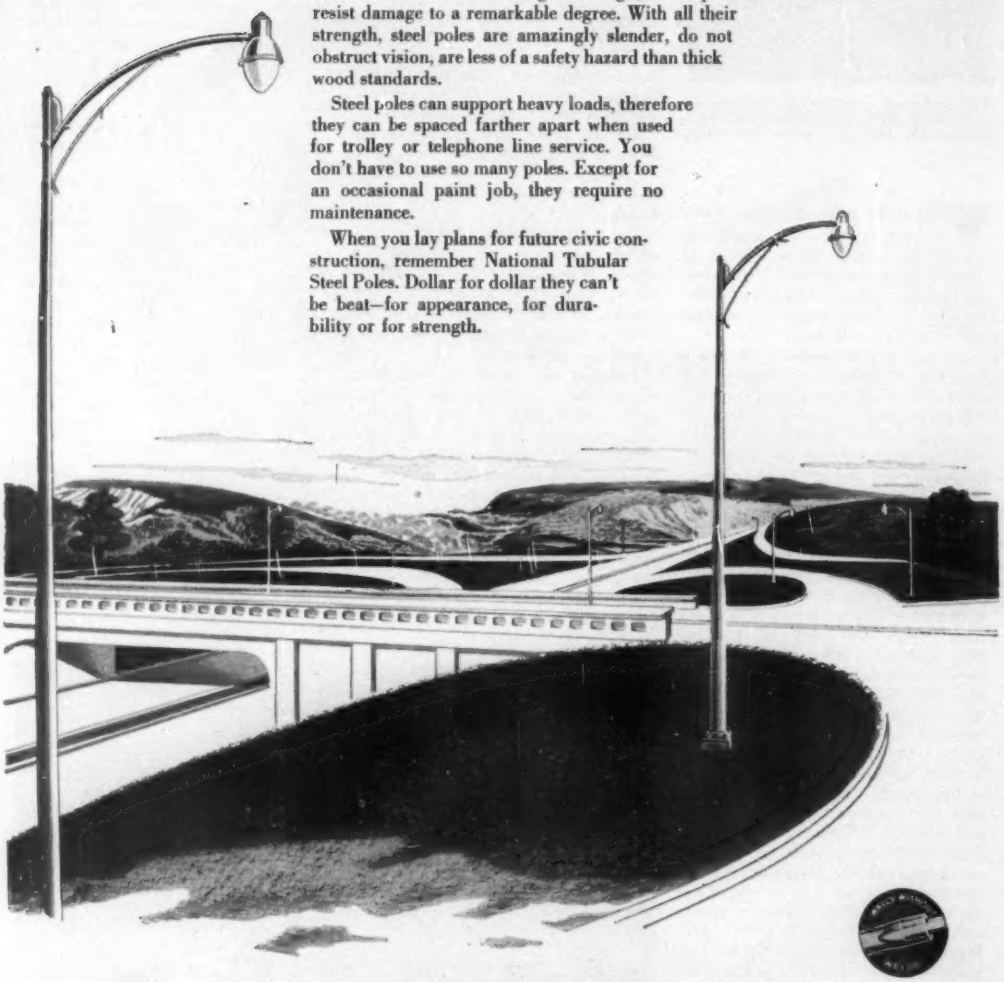
NATIONAL TUBULAR STEEL POLES have done a lot to improve the appearance of cluttered city streets and parkways. They're slim and graceful . . . probably the most unobtrusive standards ever produced.

Tubular Steel Poles are just as practical as they are attractive. The steel is strong and tough, so the poles resist damage to a remarkable degree. With all their strength, steel poles are amazingly slender, do not obstruct vision, are less of a safety hazard than thick wood standards.

Steel poles can support heavy loads, therefore they can be spaced farther apart when used for trolley or telephone line service. You don't have to use so many poles. Except for an occasional paint job, they require no maintenance.

When you lay plans for future civic construction, remember National Tubular Steel Poles. Dollar for dollar they can't be beat—for appearance, for durability or for strength.



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Flexibility test: Sample is bent 180 degrees in order to detect cracking.

blade (or sometimes by brush) over a black-and-white-striped chart. The chart is allowed to dry overnight. The contrast ratio between light reflected from the white and black stripes is the measure of opacity—with 0.88 the minimum passable ratio. The reflectance is gaged by projecting a light on to the chart under control conditions and taking a photo-meter reading of light reflected from both the white and black stripes.

Viscosity: The gallon of sample paint supplied by the manufacturer is stirred by paddle on a standard Stormer Viscosimeter, and the number of seconds required to complete 100 revolutions of the paddle is recorded. This gives an accurate, controlled measure of viscosity.

Bleeding Test: Street paint applied over bituminous surfaces must show no bleeding. This is a visual test.

Stability: This is a visual test for deterioration and is almost continuously applied throughout the entire analysis.

Lab-Wear Test: The Los Angeles Bureau of Standards has adopted a standard wear-test, designed to accomplish in a short time what longer street-wear tests show. In the lab set-up, two rubber-tired wheels connected by a hinged axle, and with each wheel weighted by 67 pounds of scrap iron, are revolved by electric motor over a ¾-inch-thick black-glass base, 54 inches in diameter. The glass base is black so that wear will show up easily. The tires have a straight—not ribbed—tread for even wear and are 16 inches O.D. On this glass base, samples of the manufacturer's paint have been carefully applied and numbered. Application for control is by doctor-blade, again a 0.005-inch coating. After the samples have been applied, they are allowed to dry for 72 hours, and then the wear-test begins. The two wheels, since they are hinged, apply even weight and bearing to the samples' surfaces and accomplish two passes with each rotation. The 800,000 passes are completed in about two days of constant running, metered so that the test is stopped when the required revolutions have been completed. Observation is visual. The time is coming—the lab, traffic engineering, and purchasing departments believe—when correlation of revolutions with actual street wear will make this the most valuable of testing devices among municipal traffic departments.

Weather Testing: This test is geared to duplicate frequent wettings and dryings which street paint, under normal conditions, must stand. Samples, on

(*Continued on page* 163)

Big Municipal Metered Lot Relieves Parking in Temple, Texas

By W. E. ROUTH
City Manager
Temple, Texas

THE metered parking lot pictured here and on the front cover of this issue is, we are certain, the largest in Texas. The urgent need for it in Temple, which has a 25,015 population, is indicated not only by the volume of cars in the lot when the picture was taken, but by those parked on the streets and around City Hall as well. A big feature is the location of the facility—smack in the heart of the business district, adjacent to City Hall shown in the background.

Here's how it happened. When the City of Temple was laid out in 1881, President George Sealy of the Santa Fe Railroad Company gave property covering two city blocks for public use. The City Municipal Building is located on one of these blocks and the new parking lot is now on the other.

From 1904 to 1918, however, this lot was occupied by Carnegie Library. In the latter year the building was destroyed by fire, and for 12 years afterwards was used as a "catch-all" square. In 1930, the park was curbed and guttered and made a drive-in market for farmers, with a bandstand in the center.

In December 1950, the construction of the modern parking lot was started. It was completed on February 20, 1951, and the event was celebrated with official exercises. Because of its downtown location, lights for evening parking are needed only around the perimeter. They are General Electric luminaires on Union Metal standards. The lot is surfaced by rock asphalt purchased from the Whites Uvalde Mines, of San Antonio, Texas, and the 278 meters are furnished by The Dual Parking Meter Company, Canton, Ohio. This off-street-parking facility has proved a great boon to our parking troubles in the downtown area.

Only two empty spots out of the 278 parking-meter stalls operating on the new municipal parking lot of Temple, Texas; City Hall is in the background.

beauty

efficiency

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TIE ROD TYPE UPSWEEP MAST ARMS

THE HUBBARD Tie Rod Mast Arm, with the famous Hubbard Keyhole design, is made in lengths of 8, 10, 12, and 14 feet, is easily installed, is well braced against side sway, and has the strength to support an extremely heavy vertical load. The ⅜-inch tie rods have 6-inches of thread at each end to allow for irregularities of mounting.

The 1¼-inch pipe will accommodate two-conductor No. 8, 6000 volt cable. Internal wiring is easy, for there are no angles, sharp bends, or obstructions.

Write for Literature

Check these advantages

- Exceptional strength . . . tie rods fastened to side of pole to minimize "sway."
- Design permits maximum elevation of luminaire.
- Meets all current strength and design requirements.
- Graceful simplicity—light weight—low cost.
- "Free-flowing" internal wiring—beveled pipe ends—no sharp bends—no obstructions.

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"Hang the Load on Hubbard Hardware!"

Street Lighting in a Mobilization Economy

By F. D. CROWTHER
Manager of Sales
Lighting and Rectifier Divisions
General Electric Company
West Lynn, Mass.

The latest in service lamps are examined at the Street-Lighting Conference by the author; Kirk M. Reid, G-E illuminating engineer at Nela Park; J. W. Young, lighting engineer, New England Power Service Company, Boston, and A. L. Pryor, safety-lighting engineer, of the Southern California Edison Company.

VARIOUS local groups and leaders are at work in your community to make it a better, more prosperous place to live. They are interested in programs for promoting community growth, attracting desirable industries, stimulating local business, reducing traffic accidents and traffic congestion, improving the appearance of business and residential areas, and heightening community spirit.

Good street lighting contributes to the success of every one of the community-improvement programs just mentioned. The same values apply in both a peace and a mobilization economy. Take two of these values and re-examine them from the point of view of their contributions to a mobilization economy. Look at the relation of street lighting to traffic safety and to crime.

Traffic Safety

Traffic safety is a serious, lives-and-dollars problem in your community. All communities are working to reduce traffic accidents, but not more than one community in six has enough modern street lighting to keep its night-accident rate down near the level of the day rate. At least five out of six communities still have "horse-and-buggy" lighting.

The night-accident fatality rates on dark and poorly lighted streets are nearly always five to ten times greater than the day fatality rates on those same streets. Most of the victims are pedestrians.

Seasonal Comparisons

Winter-summer comparisons also furnish striking proof of the danger of darkness. A 15-year record of pedestrian traffic fatalities in 10 Connecticut communities reveals that, between the hours of 5 p.m. and 8 p.m., 285 pedestrians were killed in the dark winter months. But only 41 were killed during those same hours in the light summer months, even though traffic was 15% heavier.

In Detroit the ratio of night fatalities to day fatalities on certain poorly lighted streets was 7 to 1. In Hartford, Conn., the night-to-day ratio for 10 miles of poorly lighted thoroughfares was a tragic 12 to 1!

How can we be sure the new lighting did it? What about other factors like safety campaigns, better enforcement of traffic regulations, street improvements, re-routing of traffic, and improved traffic signs? These other factors are at work during the day, as well as at night, and are, therefore, reflected in the day-accident trend.

There is no way to measure in dollars the value of sparing people from death, suffering, and disability. Nor is there any way to describe the sense of accomplishment that the sponsors of a relighting program feel when they see a rapid decline in accident fatalities and injuries. The whole community gratefully shares their well-earned feeling of accomplishment. The tragic fact that poor lighting is killing and maiming members of your community is one of the strongest appeals for building community-wide support for a program of relighting.

Now that we have reminded ourselves of these few facts about the value of street lighting in reducing night-traffic accidents, let's relate them to the mobilization program.

In 1950, 251,000,000 man-hours were lost because of the night-traffic accidents. This represents enough labor to build 2,400 badly needed heavy bombers.

According to the National Safety Council, half of these traffic accidents could have been prevented by adequate street lighting. The National Safety Council says $800,000,000 worth of materials was destroyed in night accidents last year, and half of it could have been saved if the nation's highways were adequately lighted.

Street Lighting Cuts Crime

Crime is taking an annual toll of lives and dollars that communities cannot tolerate. In 1950 close to 15,000 people were murdered, over 90,000 were assaulted, and there were more than 1,500,000 serious crimes against property. The FBI reports that crime is on the increase, in spite of everything that is being done to curb it.

Nighttime is crime time. Good street lighting does a lot to give your community a bad name among professional criminals. It helps your law-enforcement officers apprehend lawbreakers. J. Edgar Hoover, however, says this: "It stands to reason that since secrecy

JOSLYN

Turns Night into Day at Miami Beach

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GOOD STREET LIGHTING . . .

1. ***Reduces*** **Accidents and Crime After Dark**
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3. ***Promotes*** **Commercial Trade and Civic Pride**
4. ***Appeals*** **To Every Progressive, Far Sighted Citizen**

AFTER

Just Notice the difference in these two photographs taken recently on Alton Road in Miami Beach, Fla.

Joslyn Type 90 Luminaires with 6000 lumen incandescent lamps produced this transformation.

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is a vital element in the successful perpetration of a criminal act, darkness contributes materially to that success. It is also true that a large portion of crimes are committed at night. Consequently, I believe that if all streets could be well lighted, it would tend to decrease crime."

In any kind of an economy—war, peace, or mobilization—street lighting saves and earns far more than it costs. Of that I am convinced. With the few facts foregoing, answer these questions:

1. Nearly 40,000 people were killed in traffic accidents last year. Aside from the human considerations, is it *less* important—or more important—to save these lives in a mobilization economy?

2. 251,000,000 man-hours were lost in 1950 through night-traffic accidents. Is it *less* important to save these productive and military man-hours when labor is at a premium, when every industry is short-handed?

3. On September 3, 1950, 293 people were murdered or assaulted; 4,062 were robbed. Will this tragic loss be *less* important on September 3, 1951?

4. $800,000,000 worth of material was destroyed in traffic accidents last year. Is that material *less* valuable in 1951, 1952, or 1953?

5. 67,000 cars were destroyed last year. Over 7,000,000 were built. Will the loss of 67,000 cars be *less* important as we cut production?

Is Street Lighting Essential?

By LUTHER D. SHANK
Building Materials Division
National Production Authority
Washington, D. C.

THE basic materials used in the manufacture and the installation of street-lighting systems are aluminum and copper, as well as lesser quantities of silicon steel, hot- and cold-rolled sheet and strip steel, some angle iron, and smaller quantities of stainless steel, zinc, and tin.

Under a strict interpretation of present regulations or M Orders, as they are called in this case, the manufacturers of street-lighting equipment are limited to 65% of their rate of production during the first six months of 1950. I use the figure 65% simply because this is the allowable usage of the predominant metal — aluminum — as permitted in the second quarter of this year by the Order M-7. I believe there is evidence that aluminum is the only practical material for use in the structural parts of street-lighting equipment and any substitute would involve, probably, equally strategic material. The 65% limit is established on the basis that those products permitted to be manufactured at a reduced rate do not attain the essentiality of those products carrying ratings. To increase the production of street-lighting equipment over and above this arbitrary cutback figure, it becomes necessary to establish greater essentiality of the product.

That, as far as NPA is concerned, is directly your manufacturers' problem. In effect, however, it falls back on you and becomes your problem. Now, what is the answer to this problem?

The Criteria of Essentiality

Mr. Crowther [see page 139] gave you an excellent summary of a few of the factors that he thinks establishes the essentiality of the street-lighting industry. Let us analyze those arguments in terms of the national picture. Do they, or do they not, meet the official definition of essentiality? The key to the answer, of course, is whether or not it is in the interest of national defense to have good street and highway lighting. Other criteria are the public interest and public safety.

The facts presented by Mr. Crowther are convincing proof that dark streets are dangerous; they are death traps, and they do have high accident rates. And the statistics he brought forward do, in my opinion, prove beyond doubt that good lighting will make substantial—and often startling—contributions to night safety.

Mr. Crowther's delineation of the crime situation frankly startles me. But the sources he quotes are unimpeachable and admit no question. I recognize fully the extreme difficulty in measuring the cost of crime to the American people, and I suspect that Mr. Crowther's estimate is probably very conservative. And, of course, it is hard to arrive at the cost—either in humane terms or in dollars—of a murder.

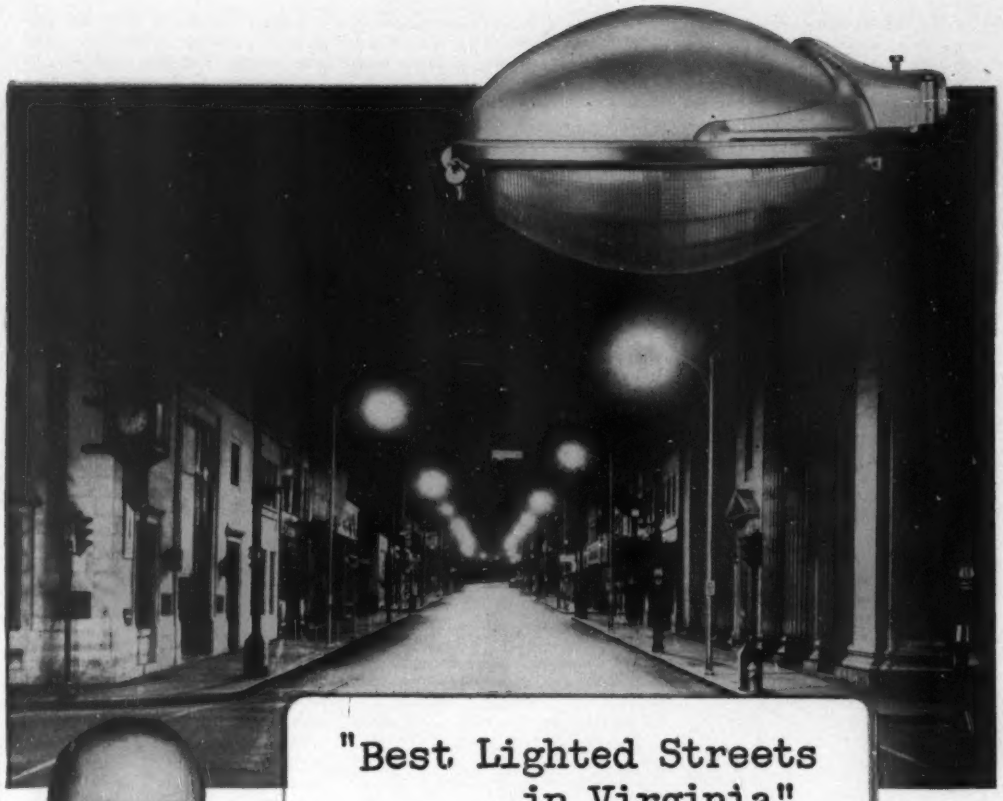
Admitting these factors, then, the answer to essentiality must lie in the answer to Mr. Crowther's questions.

> 1. "Nearly 40,000 people were killed in traffic accidents last year. Aside from the humane considerations, is it *less* important—or more important—to save these lives in a mobilization economy?"

Incidentally, you might notice how cleverly Mr. Crowther puts his question. You think you have a choice of answers, but that's all.

First, I'd like to quarrel with one premise of the question: "aside from the humane considerations." Personally, and officially, I am not willing to put aside the "humane considerations." The tremendous effort that NPA is putting into this defense program, trying not to dislocate the civilian economy, should be evidence of this. The answer to the

The author, who is in charge of street-lighting-material allocations for the National Production Authority, is pictured addressing the annual Street Lighting Conference, sponsored by General Electric, at Nela Park, Cleveland, in May.



"Best Lighted Streets in Virginia"

City Manager, Arthur Owens, Roanoke, Virginia, points with pride "to the first large-scale application of truly modern lighting in the Southeastern United States." The Westinghouse OV-20 mercury vapor lighting system, installed by the Appalachian Electric Power Company, is making a hit with the citizens:

"We have already ordered a sizable extension to relight our secondary business streets, and we believe that universally favorable response to this lighting system will eventually lead to installation of hundreds of similar units on our arterial approaches, bridges and viaducts."

Arthur J. Owens

What's more, they have invested in a system that is easy to maintain. Hinged construction of the OV-20 makes routine cleaning a matter of minutes. Relamping can be done with one hand.

Whether you buy lighting, install lighting or plan lighting, it will be worth your while to investigate the Westinghouse mercury vapor lighting story. Send for B-3876A, Westinghouse Electric Corporation, Box 868, Pittsburgh 30, Pa.

J-04302

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PLANNED LIGHTING SYSTEMS

question, necessarily, is that it is just as important, probably even more so, to save lives in our present economy as it is at any other time. Saving lives, no matter how you do it, is in the national interest.

2. "251,000,000 man-hours were lost in 1950 through night-traffic accidents. Is is *less* important to save these productive and military man-hours when labor is at a premium, when every industry is short-handed?"

Answering that question is like answering, "Do you still beat your wife?"

Not long ago General Bradley publicly stated that, "the conditions under which we labor may persist for 10, 15, or 20 years." If he is right, and may God forbid, the answer is obvious: Every single man-hour we can save is a step forward in our drive on communistic aggression—and a vital part of our defense structure.

3. "On September 3, 1950, 293 people were murdered or assaulted; 4,062 were robbed. Will this tragic loss be *less* important on September 3, 1951?"

I think not. Whether we think of the loss of productive workers, the lost man-hours, the economic losses, or even the moral problem involved, the question of curbing crime is important at any time. Then, too, the support of an ever-growing army of law-enforcement officers is a serious problem.

4. "$800,000,000 worth of material was destroyed in traffic accidents last year. Is that material *less* valuable in 1951, 1952, or 1953?"

If it did not sound too much like an enthusiastic endorsement of your program, I might point out that Mr. Crowther could have drawn a vital conclusion from this question. He might have gone on to explain that the street-lighting industry very probably saves more critical materials than it uses. Now, Mr. Crowther, do you still want me to answer your fourth question?

5. "67,000 cars were destroyed last year. Over 7,000,000 were built. Will the loss of 67,000 cars be *less* important as we cut production?"

I believe that it is an accepted fact that the lack of production of automobiles between 1942 and 1945, coupled with the fact that many wore out and many were destroyed during that period, nearly brought about a collapse of our transportation system. Only the magnificent effort of the automobile industry in resuming production averted a serious crisis. We do not want that to happen again.

Economically, destruction of property of any kind results in two things. First, it reduces the standard of living by the exact value of the destroyed material. Second, because the property must be replaced, it creates inflation. The two facts, as you can see, are completely incompatible. Most often this economic principle affects only individuals, but it can affect nations. For example, the tremendous destruction of property in England during the Blitz helped to plunge her into economic chaos.

Why Not Have Modern Lighting in Your City?

Under the heading above in the August issue, three important contributions to street-lighting information will be presented. Discussions will cover the electric-utility viewpoint; wiring needs, discussed by a cable specialist, and more about lighting fixtures.

Conclusion

Some of you—and it is probably inevitable—will interpret my remarks as an enthusiastic, unequivocal, and official endorsement of your street-lighting activities. I deliberately want to warn you against that interpretation.

Yes, you do contribute to the defense economy, and in a substantial measure. Yes, your work is in the public interest and for the public safety. As a result, your industry is secure in its place as a supporting program. But, depending on the needs of the military, that position could change tomorrow. And it could change by your own doing.

Whether you are a manufacturer, or a user, a utility executive or a municipal official; you have a major duty to yourself and to the nation. You have a duty to conserve material, to use equipment wisely and well, to maintain it and service it in such a way that you get the most out of it.

In the second place, you must plan wisely. Yes, get what you need, but don't hoard. Over and above the legal penalties you risk by piling up inventory, you can easily create shortages and high prices.

In the third place—and you do not fulfill either the intent or the spirit of the law unless you do this—you must be on the alert for practical substitutes. Make an honest effort to use less-critical materials wherever possible.

In the fourth place, you must make every effort to see that all junk and scrap metals are salvaged and returned to channels that will assure their reaching the steel mills and copper and aluminum smelters. This year, to meet the proposed steel production, we must find 3,000,000 more tons of scrap than was found last year, which was the biggest year for scrap collection. In 1952, we have to find 6,000,000 more tons of scrap. Without this additional scrap, our entire defense program will be jeopardized. The lack of copper can cause a breakdown in our entire defense effort. Recently, the NPA initiated a nation-wide scrap drive through the United States Chamber of Commerce. We plead with each and everyone of you to go back to your respective organizations, and issue instructions that every available bit of scrap metal be salvaged—and that means old lighting standards, brackets, old street-car tracks, junk copper wire, and other metals or equipment that contain these metals; and have these metals properly routed back to where they will aid in the defense effort.

Finally, I should like to make a personal appeal to you, not as members of the street-lighting industry, but as representatives of our whole industrial machine. You must increase your efficiency wherever possible. You must increase your capacity to produce. You must continue—as you have in the past—to display the administrative talents and the organizing abilities that have made America the greatest industrial power in all history. Remember—it is vastly better to prevent a war, if we can, than to win one.

English Exhibit Features Refractor for Hilly Streets

PARISH COUNCILS in the South Eastern Electricity Board's area, Surrey, England, were given an unusual opportunity to inspect a large number of different makes of street-lighting standards and luminaires at a special exhibit organized in Dorking. Volume of attendance showed appreciation of the innovation, according to *The Municipal Journal* for February 9, 1951.

The exhibition included 56 displays of concrete standards and illuminated traffic signs, and an indoor display of fixtures. One feature was the showing of a new glare-reducing, cylindrical sodium refractor offered by Holophane, Ltd. The correct angle of incidence of the main beams to the road surface can be maintained on gradients by rotation of the refractor cylinder. This adjustment can be related to any degree of road gradient. The makers have found, however, that it is only necessary to calibrate the adjustment scale on the lantern to cover gradients up to one in five, as this covers the maximum inclination normally met on main traffic routes.

Bird's-eye view of a *solved* parking problem!

Another city — Temple, Texas — turns to DUALS ...installs 278 in Texas' largest, municipally owned, metered parking lot

PROGRESSIVE Texas cities take a back seat to none—especially when it comes to civic improvements. No wonder, then, that Temple officials decided on *Dual Automatic Parking Meters* for their new municipal parking lot.

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If your community is challenged by parking problems—*meet* them with Duals. On-street or off-street, Duals can do the job. Get the facts about their many advanced operating features. Send for Bulletin DU-504 for on-street parking; Bulletin DU-505 for off-street parking.

Aerial view of Temple, Texas, municipal parking lot—the largest such metered facility in the state.

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The Municipal Bond Market

State Limitations on City Debt Handicap Good Administration

By CATHERINE CLARK
Municipal Service Department
Dun and Bradstreet, Inc.
New York, N. Y.

LIKE anxious parents of small children, states are always making regulations for cities' own good. Among the most time-honored of these regulations are limitations on debt and property taxes. Framed to keep cities out of trouble, such constitutional and statutory limitations have sometimes served that purpose and sometimes not. As "spare the rod and spoil the child" is no longer considered a sufficient principle for child-rearing, so it is evident that negative prohibitions alone will never insure a city's financial health.

The idea of limiting debt is obviously a sound one, or so many cities would not practice it on a voluntary basis. For one city that is nearing its legal debt limit, there are dozens with ample borrowing margin. And while that one city may simply be improvident or working its way painfully out of past improvidence, its plight may be due to circumstances over which it has little control. To take one example of pertinence at the present time, the city may have been ordered by a state agency to construct a sewage-disposal plant. The state, with one hand, has set a limit on the debt which a city may incur and, with the other, has virtually forced it to issue a large amount of bonds, perhaps a larger amount than the borrowing margin allows.

When Debt Limits Must Go

This is a dilemma that the city itself cannot resolve, and the state must perforce modify one of its directives. Usually, it is the debt limit that goes. In Michigan, for example, the state supreme court has recently ruled constitutional a statute which says that, when a city is under court order to construct a sewage-disposal plant, it may issue bonds therefor without a vote of the people, and that such bonds are outside any constitutional or statutory debt limitation.

The burgeoning of special districts has also been due in part to debt limitations. In Indiana, for instance, the constitution limits municipal debt to 2% of the assessed valuation. This limitation is even more severe than it appears because the ratio of assessed to true value is generally low—a recent statute setting the assessment ratio at one-third of market or replacement cost indicates the prevailing level. The limitation has forced cities to certain stratagems, one of them being the creation of special districts entitled to a debt limitation of their own. Since, to all intents and purposes, these districts are departments of the city, one of the unlooked for results of the debt limitation has been to set up an unnecessary handicap to good administration.

The urgent need for school facilities, plus higher modern standards of adequacy, has in many instances forced states to modify the debt limitations they have set. Some states have liberalized limitations on school bonds. Others—notably Pennsylvania, Indiana, and Kentucky—have even provided a method of issuing school bonds outside of all legal debt limitations. Essentially, the method provides for setting up a school-building corporation which then issues bonds payable solely from rentals of the building, the rental being set as a sum sufficient to pay principal and interest charges on the bonds. Since a school is not by its nature a revenue-producing enterprise, the rental money is ordinarily raised by the levy of general property taxes. A legal fiction differentiates such bonds from ordinary school bonds; as far as the taxpayer is concerned, there is no difference.

Debt limitations have also proved, in some cases, a handicap to good school administration. In Illinois, where the constitution provides a debt limit of 5% of the assessed valuation for each municipal unit, elementary and high-school facilities are ordinarily provided by separate districts. Educational opinion has long favored the formation of unit districts, but the movement has been retarded by the fact that union of a high-school district with one or more elementary districts would mean, in effect, reducing the borrowing capacity from 10% to 5% of the assessed valuation. Since one of the objects of the merger, particularly in rural districts, would be to finance construction of a modern building that neither district could afford separately, the reduction in borrowing capacity virtually nullifies the advantages of joining forces. Opinion in Illinois has been sufficiently aroused that the legislature is now considering measures to remedy the situation.

Good and Bad Arguments For Debt Limitation

It goes without saying that there are good arguments for legal debt limitations. This discussion has purposely concentrated on the negative side, in order to raise the question whether there are not more positive, or at least supplementary, means of aiding good debt administration and preventing debt from becoming an unduly heavy burden on the taxpayer. Some of these means, together with the related subject of tax rate limits, will be discussed next month.

States Grant Cities Wider Taxing Powers

MUNICIPAL revenue problems continue to occupy the attention of state legislatures as cities, faced with inflation and civil-defense needs, press for broadened taxing powers or greater shares of state-collected taxes.

According to the Municipal Finance Officers' Association, Oregon is one of the latest states to approve measures aimed at giving its cities financial relief. One of Oregon's new measures gives cities 5% of the net annual revenues from the state's liquor monopoly. The revenues, expected to amount to some $400,000 annually, will be apportioned to cities by population.

Another Oregon act permits cities to issue bonds for civil-defense purposes in excess of regular debt limits. It will allow cities, if voters approve, to sell bonds at up to 10% of assessed valuation instead of the usual 5% to purchase medical or fire-fighting equipment and to build air-raid shelters.

Under a proposal given approval in North Carolina, cities of that state will get approximately $4,500,000 a year as their slice of the highway fund—this share to come from one-half cent of the state's gas tax. The local government will be authorized to use the money for building and maintaining streets with their shares, to be based on population and street mileage.

Idaho's legislature passed an enabling act effectuating a state constitutional amendment ratified last November to permit municipalities to issue revenue bonds for water systems, sewage systems, water-treatment plants, disposal plants, or off-street parking facilities.

Action earlier this year by other state legislatures approving broader taxing powers for their cities included Tennessee—permission for cities to levy a 10% local tax on the retail price of beer; West Virginia—authority for cities to levy a wide variety of new taxes, including levies on motor vehicles and domestic animals, such as dogs and cats, and authority for cities to impose fees for garbage collection and sewer connections; New Mexico—cities are now permitted to levy a tax of one cent per pack of cigarettes, the revenue to be spent for recreational facilities for juveniles; Wyoming—a new two-cent cigarette levy, less the expense of collection, will be rebated to local governments.

Recent City Manager Appointments

The following portraits are of city managers whose appointments have been announced in preceding issues of *The American City*

J. D. Cheek
Ada, Okla.

Elbert M. Prince
Vassalboro, Maine

Charles M. Dixon
Moultrie, Ga.

A. Page Lockard
Grafton, W. Va.

R. B. Riddle
Paris, Texas

WILLIAM B. AVERY has been appointed by Manhattan, Kans., as its first manager. He was formerly in the Kansas City manager's office, in the research and budget department.

Derry, N. H., has appointed one of its former selectmen, L. HENRY BAILEY, to succeed DEAN CUSHING as town manager.

E. FREDERICK BIEN, who was assistant manager in Pittsburg, Kans., has been appointed first manager of Puyallup, Wash.

Hutchinson, Kans., has appointed THOMAS E. CHENOWETH, administrative assistant to the city manager in Kansas City, as its new manager, to succeed H. C. MCCLINTOCK.

The first manager of Marple Township, Broomall, Pa., is WILLIAM J. DAVIES.

JOHN J. DESMOND has moved from Brunswick, Maine, to succeed A. J. KOENIC as manager of Milford, Conn.

L. Z. DOLAN has replaced MILLER SELL as manager of Johnson City, Tenn. Mr. Dolan was a Washington representative for an engineering concern at the time of his appointment.

Konawa, Okla., has appointed JASPER N. FREEMAN to succeed ROY E. ADAIR.

L. L. HOUSTON will move from Pawhuska, Okla., on July 1 to become manager of Cushing, Okla., succeeding ELMER F. EDGE.

CALVIN A. LAKIN, who was assistant manager in Russell, Kans., is now manager of Norway, Mich. He succeeded WILLIAM H. LANGE.

The assistant manager of Emporia, Kans., ROBERT LOVELACE, has been appointed as the new manager of Delray Beach, Fla., succeeding CHARLES E. BLACK.

CHARLES T. MARSH, formerly administrative analyst in the Kansas City manager's office, is now manager of Slater, Mo.

CHARLES F. SCHWALM, who has been acting manager of Hamilton, Ohio, since MARK THOMAS died, has now been appointed city manager.

The new manager of Tillamook, Ore., is M. W. SLANKARD, formerly manager of Roseburg, Ore.

ARCHIE A. STEVENS resigned the managership of Greenville, Maine, to become manager of Norway, Maine, replacing ALLEN L. WILCOX.

Shaler Township, Pittsburgh, Pa., appointed the secretary of its board, J. WYNN THOMPSON, as first manager of the township.

The Town of Lancaster, N. H., has appointed JOHN W. TRUE to replace ALLEN L. TORREY as its manager. Mr. True was town manager of New Gloucester, Maine.

HAROLD B. VASEY is leaving Brookfield, Mo., to become the first manager of Kearney, Nebr.

W. DALE STROTHER has been succeeded by FRANK WISEMAN as manager of Clarksburg, W. Va.

CLARENCE E. RIDLEY
Director
International City Managers' Association

Cities Set Annexation Record

CITIES are straining to keep up with urban expansion by annexing outlying areas, the International City Managers' Association reports.

Last year an all-time record of 382 cities with a population over 5,000 extended corporate limits by means of annexation, according to a survey completed by the Association recently for the 1951 *Municipal Year Book*.

This marks an increase of 27% over the number of cities adding land in 1949, when 301 municipalities annexed some suburban property. However, the areas annexed last year amounted both to a smaller total and a smaller average than was reached in 1949. Of last year's annexations, 223 were by cities over 10,000 population. The remaining 159 were by the smaller cities of between 5,000 and 10,000.

Cities generally strive to annex outlying territories in order to equalize local tax rates, provide uniform public service, and permit long-range community planning, the Association pointed out. Suburbs usually resist annexation with the plea that it means higher tax rates.

The most territory annexed by any city last year was that of Albuquerque, N. Mex., with the addition of 22.9 square miles. Kansas City, Mo., with 19.2 square miles added, was second, and Memphis, Tenn., was third with 19 square miles. Birmingham, Ala., annexed 13.4 square miles.

Other cities reporting major annexations during the year were Louisville, Ky., 9.48 square miles; Alexandria, Va., 7.5; Evansville, Ind., 5.5; South Norfolk, Va., 5.1; Dallas, Tex., 4.42, and Springfield, Mo., 3.71.

Chief basic urban services that were inadequate in the annexed areas were drainage, fire protection, police protection, sewerage, streets, and water supply, the *Year Book* survey showed. In nearly all cases, the annexing cities have had to make considerable financial outlay to bring the annexed areas' facilities up to the standards within their own limits.

City officials are practically unanimous in believing that in the immediate future the annexed areas will cost more than they will return in revenues [the Association said] although nearly all of them agree that over a long period of time the areas will pay their own way. This causes a serious dilemma among cities on whether or not to annex troublesome fringe areas.

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- NO ATTRACTION (BREEDING PLACES) FOR FLIES, RATS OR VERMIN.
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Title_____ Dept._____

Address_____

City_____ State_____

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Conventions — When and Where

Conventions listed this month for the first time are indicated by an asterisk (*)

July 5-7—Milwaukee, Wis.
National Association of County Officials. Annual Convention (Hotel Schroeder). Sec.-Treas., Keith L. Seegmiller, 1616 Eye St., NW., Washington 6, D. C.

July 24-26—New York, N. Y.
New York State Association of Chiefs of Police. Annual Convention (Hotel New Yorker). Exec. Sec., R. W. Morris, 328 State Tower Bldg., Syracuse, N. Y.

Aug. 14-17—Grand Rapids, Mich.
International Association of Fire Chiefs. Annual Convention (Pantlind Hotel). Gen. Mgr., James E. Jagger, 22 E. 38th St., New York, N. Y.

Aug. 20-22—State College, Pa.
Pennsylvania Water Works Operators' Association. Annual Convention (Temporary Union Bldg.). Sec.-Treas., R. Rupert Kountz, School of Engineering, State College, Pa.

Aug. 22-24—State College, Pa.
Pennsylvania Sewage and Industrial Wastes Association. Annual Conference (Pennsylvania State College). Sec.-Treas., Bernard S. Bush, Kirby Health Center, Wilkes-Barre, Pa.

Aug. 27-30—Washington, D. C.
Illuminating Engineering Society. National Technical Conference (Hotel Shoreham). Exec. Sec., A. D. Hinckley, 1860 Broadway, New York 23, N. Y.

Aug. 27-31—Cincinnati, Ohio
National Shade Tree Conference. Annual Convention (Netherland-Plaza Hotel). Sec.-Treas., L. C. Chadwick, Ohio State College, Columbus, Ohio.

***Aug. 30-Sept. 1—Mackinac I., Mich.**
Michigan Municipal League. Annual Convention (Grand Hotel). Dir., John H. Hase, 205 S. State St., Ann Arbor, Mich.

***Sept. 5-6—Milwaukee, Wis.**
Wisconsin Chiefs of Police Association. Annual Convention (Schroeder Hotel). Sec., Walter H. Haynes, Chief of Police, Sheboygan, Wis.

Sept. 5-7—Washington, D. C.
Governmental Research Association. Annual Convention (Hotel Statler). Sec., Louis D. Brown, 30 Rockefeller Plaza, New York 20, N. Y.

Sept. 9-11—Fargo, N. D.
League of North Dakota Municipalities. Annual Convention (Hotel Gardiner). Exec. Sec., Myron H. Atkinson, Bismarck, N. D.

Sept. 9-13—Poland Spring, Maine
International City Managers' Association. Annual Conference. Dir., Clarence E. Ridley, 1313 E. 60th St., Chicago, Ill.

Sept. 10-12—Boston, Mass.
New England Water Works Association. Annual Convention (Hotel Statler). Sec., Joseph C. Knox, 73 Tremont St., Boston 8, Mass.

Sept. 10-12—Pocono Manor, Pa.
Pennsylvania Municipal Authorities Association. Annual Conference (Pocono Manor Inn). Sec., Charles F. LeeDecker, 103 Sparks Bldg., State College, Pa.

***Sept. 11-13—Marshalltown, Iowa**
Iowa Sewage Works Association. Annual Meeting (Hotel Tallcorn). Sec.-Treas., Leo Holtkamp, P. O. Box 310, Webster City, Iowa.

Sept. 12-14—Minneapolis, Minn.
American Water Works Association—Minnesota Section. Annual Conference (Hotel Nicollet). Sec.-Treas., Leonard N. Thompson, 216 Court House Bldg., St. Paul 2, Minn.

Sept. 13-14—Whiteface, N. P.
American Water Works Association—New York Section. Fall Meeting (Whiteface Inn). Sec.-Treas., R. K. Blanchard, 50 W. 50th St., New York 20, N. Y.

Sept. 13-15—Johnstown, Pa.
League of Cities of the Third Class in Pennsylvania. Annual Convention (Hotel Stanwix). Pres., Walter E. Greenwood, City Hall, Harrisburg, Pa.

Sept. 13-15—Saranac Inn, N. Y.
County Officers' Association of New York State. Annual Convention (Saranac Inn). Exec. Sec., Donald C. Scribner, County Bldg., Johnstown, N. Y.

Sept. 13-15—Wilkes Barre, Pa.
Pennsylvania State Association of County Commissioners. Annual Convention (Sterling Hotel). Sec.-Treas., Herbert S. Bolger, Court House, Holidaysburg, Pa.

Sept. 16-18—Roanoke, Va.
League of Virginia Municipalities. Annual Convention (Hotel Roanoke). Exec. Sec., Harold I. Baumes, 905 Travelers Bldg., Richmond 19, Va.

Sept. 16-19—Detroit, Mich.
American Public Works Association. Annual Convention (Veterans Memorial Bldg.). Exec. Dir., D. F. Herrick, 1313 E. 60th St., Chicago 37, Ill.

***Sept. 17-19—Louisville, Ky.**
American Water Works Association—Kentucky-Tennessee Section. Annual Meeting (Louisville Kentucky Hotel). Sec., R. P. Farrell, State Dept. of Public Health, 420 Sixth Ave. N., Nashville, Tenn.

***Sept. 17-19—Topeka, Kans.**
League of Kansas Municipalities. Annual Convention (Municipal Auditorium). Exec. Dir., John G. Stutz, 512 Capitol Federal Bldg., Topeka, Kans.

***Sept. 17-20—San Francisco, Calif.**
International Municipal Signal Association. Annual Meeting (Mark Hopkins Hotel). Sec., Irvin Shulsinger, 11 W. 42nd St., New York 18, N. Y.

***Sept. 18-20—Norfolk, Nebr.**
League of Nebraska Municipalities. Annual Convention (Hotel Madison). Exec. Sec.-Treas., C. E. Beals, 407 Continental Bldg., Lincoln, Nebr.

Sept. 19-21—St. Joseph, Mich.
American Water Works Association—Michigan Section. Annual Convention (Whitcomb Hotel). Exec. Sec., T. L. Vander Velde, Dept. of Health, Lansing 4, Mich.

***Sept. 19-21—Philadelphia, Pa.**
American Water Works Association—Pennsylvania Section. Annual Meeting (Bellevue-Stratford Hotel). Sec., L. S. Morgan, State Dept. of Health, Greensburg, Pa.

***Sept. 20-21—Milwaukee, Wis.**
League of Wisconsin Municipalities. Annual Convention (Hotel Schroeder). Exec. Sec., Frederick N. MacMillin, 30 E. Johnson St., Madison 3, Wis.

Sept. 19-21—Yankton, S. D.
South Dakota Water and Sewage Works Conference. Annual Convention (Charles Gurney Hotel). Sec.-Treas., Charles E. Carl, State Dept. of Health, Pierre, S. D.

Sept. 23-26—New York, N. Y.
American Chamber of Commerce Executives. Annual Conference (Hotel Commodore). Exec. Sec.-Treas., Miss Elizabeth Glenn, 1615 H St., NW., Washington, D. C.

Sept. 24-25—Denver, Colo.
American Water Works Association—Rocky Mountain Section. Annual Convention (Cosmopolitan Hotel). Exec. Sec., George J. Turre, Board of Water, Denver, Colo.

***Sept. 24-26—Biloxi, Miss.**
American Water Works Association—Alabama-Mississippi Section. Annual Meeting (Buena Vista Hotel). Sec., Charles W. White, State Dept. of Public Health, 537 Dexter Ave., Montgomery 4, Ala.

Sept. 24-27—Los Angeles, Calif.
Institute of Traffic Engineers. Annual Convention (Ambassador Hotel). Exec. Sec., Fred W. Hurd, 211 Strathcona Hall, New Haven 11, Conn.

***Sept. 25-27—Milwaukee, Wis.**
American Water Works Association—Wisconsin Section. Annual Meeting (Hotel Pfister). Sec.-Treas., Leon A. Smith, City Hall, Madison 3, Wis.

***Sept. 26-27—Gilbertsville, Ky.**
Kentucky Municipal League. Annual Convention (Kentucky Dam Village State Park). Exec. Sec.-Treas., Carl B. Wache, University of Kentucky, Lorington, Ky.

***Sept. 26-28—Fargo, N. D.**
North Dakota Water and Sewage Works Conference. Annual Convention (Hotel Gardner). Exec. Sec., Jerome H. Svore, Chief Sanitary Engineer, Bismarck, N. D.

***Sept. 27-28—Toledo, Ohio**
American Water Works Association—Ohio Section. Annual Meeting (Commodore Perry Hotel). Sec., F. P. Fischer, Wallace & Tiernan Co., 812 Perry Payne Bldg., Cleveland 13, Ohio.

***Sept. 30-Oct. 2—St. Joseph, Mo.**
American Water Works Association—Missouri Section. Annual Convention (Hotel Robidoux). Sec., Warren A. Kramer, Division of Health, State Office Bldg., Jefferson City, Mo.

Oct. 1-4—Cincinnati, Ohio
American Transit Association. Annual Convention (Netherland Plaza Hotel). Gen. Sec., Arthur W. Baker, 292 Madison Ave., New York 17, N. Y.

Oct. 1-5—Boston, Mass.
National Recreation Congress. Annual Convention (Hotel Statler). Sec., T. E. Rivers, 315 Fourth Ave., New York, N. Y.

Oct. 3-5—Watertown, S. D.
South Dakota Municipal League. Annual Convention. Sec., R. D. Falk, Law Bldg., University of South Dakota, Vermillion, S. D.

Oct. 7-9—Peoria, Ill.
Illinois Municipal League. Annual Convention (Hotel Pere Marquette). Exec. Dir., A. L. Sargent, 537 S. 4th St., Peoria, Ill.

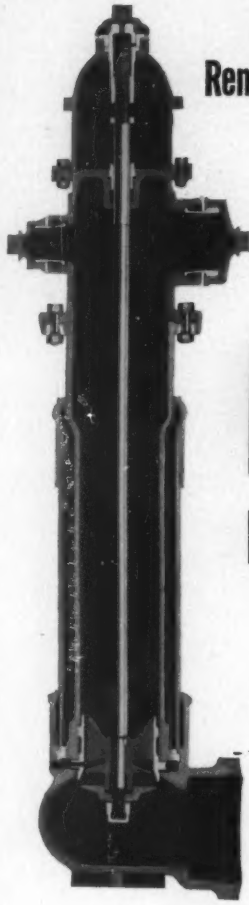
Oct. 7-11—Detroit, Mich.
Civil Service Assembly. Annual Convention (Hotel Statler). Dir., Kenneth O. Warner, 1313 E. 60th St., Chicago 37, Ill.

Oct. 8-11—St. Paul, Minn.
Federation of Sewage and Industrial Wastes Associations. Annual Meeting (Municipal Auditorium). Exec. Sec., W. H. Wisely, 325 Illinois Bldg., Champaign, Ill.

Oct. 8-11—St. Louis, Mo.
National Association of Assessing Officers. Annual Convention (Hotel Statler). Exec. Dir., Albert W. Noonan, 1313 E. 60th St., Chicago 37, Ill.

Oct. 8-12—Chicago, Ill.
Thirty-Ninth National Safety Congress and Exposition. Annual Convention (Stevens Hotel). Gen. Sec., R. I. Forney, National Safety Council, 425 N. Michigan Ave., Chicago 11, Ill.

(*Continued on page 151*)



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Conventions—When and Where

(*Continued from page* 149)

Oct. 9-12—Washington, D. C.
NATIONAL ASSOCIATION OF HOUSING OFFICIALS. Annual Convention (Hotel Statler). Dir., John M. Ducey, 1313 E. 60th St., Chicago 37, Ill.

Oct. 10-11—Des Moines, Iowa
LEAGUE OF IOWA MUNICIPALITIES. Annual Convention (Hotel Fort Des Moines). Exec. Sec.-Treas., Max A. Conrad, Burlington, Iowa.

Oct. 14-17—Fort Worth, Texas
AMERICAN WATER WORKS ASSOCIATION—Southwest Section. Annual Convention (Texas Hotel). Sec.-Treas., Leslie A. Jackson, Robinson Memorial Auditorium, Little Rock, Ark.

Oct. 14-17—Pittsburgh, Pa.
AMERICAN SOCIETY OF PLANNING OFFICIALS. Annual Convention (Hotel William Penn). Exec. Dir., Walter H. Blucher, 1313 E. 60th St., Chicago 37, Ill.

Oct. 14-17—San Francisco, Calif.
LEAGUE OF CALIFORNIA CITIES. Annual Convention. Exec. Dir., Richard Graves, Hotel Claremont Bldg., Berkeley 5, Calif.

***Oct. 15-17—Portland, Ore.**
LEAGUE OF OREGON CITIES. Annual Convenvention (Multnomah Hotel). Exec. Sec., Herman Kehrli, Johnson Hall, University of Oregon, Eugene, Ore.

Oct. 15-18—Toronto, Canada
ASSOCIATION OF SCHOOL BUSINESS OFFICIALS. Annual Convention (Hotel Royal York). Sec., H. W. Anderson, 306 E. Lovell St., Kalamazoo, Mich.

***Oct. 18-20—Peoria, Ill.**
ILLINOIS ASSOCIATION OF PARK DISTRICTS. Annual Convention (Hotel Jefferson). Exec. Sec., Miss Marjorie Dickinson, 621 E. Capitol St., Springfield, Ill.

Oct. 21-24—Mineral Wells, Texas
LEAGUE OF TEXAS MUNICIPALITIES. Annual Convention (Baker Hotel). Exec. Dir., A. E. McAdams, 108 E. 19th St., Austin 1, Texas.

Oct. 21-24—Washington, D. C.
NATIONAL INSTITUTE OF GOVERNMENTAL PURCHASING. Annual Conference and Exhibit (Shoreham Hotel). Exec. Dir., Albert H. Hall, 730 Jackson Place, NW., Washington 6, D. C.

***Oct. 22-24—Pittsburgh, Pa.**
ENGINEERS' SOCIETY OF WESTERN PENNSYLVANIA. Annual Water Conference (Hotel William Penn). Sec., W. M. Porter, Engineers' Society of Western Pennsylvania, Hotel William Penn, Pittsburgh 30, Pa.

***Oct. 23-26—San Francisco, Calif.**
AMERICAN WATER WORKS ASSOCIATION—California Section. Annual Convention (Fairmont Hotel). Sec.-Treas., William W. Aultman, P. O. Box 38, La Verne, Calif.

***Oct. 24-26—Winston Salem, N. C.**
NORTH CAROLINA LEAGUE OF MUNICIPALITIES. Annual Convention (Hotel Robert E. Lee). Exec. Sec., Mrs. Davetta L. Steed, 1009 Raleigh Bldg., Raleigh, N. C.

***Oct. 25-27—Dubuque, Iowa**
AMERICAN WATER WORKS ASSOCIATION—Iowa section. Annual Convention (Hotel Julien). Exec. Sec., H. V. Pedersen, Marshalltown Water Works, Marshalltown, Iowa.

Oct. 25-27—Atlantic City, N. J.
AMERICAN WATER WORKS ASSOCIATION—New Jersey Section. Annual Fall Meeting (Hotel Madison). Sec., C. B. Tygert, Box 178, Newark, N. J.

Oct. 28-31—Daytona Beach, Fla.
FLORIDA SEWAGE AND INDUSTRIAL WASTES ASSOCIATION, jointly with the Florida Section of the AMERICAN WATER WORKS ASSOCIATION. Annual Fall Meeting (Princess Issena Hotel). Sec.-Treas., Perry M. Teeple, P. O. Box 210, Jacksonville 1, Fla.

Oct. 28-Nov. 1—Miami, Fla.
INTERNATIONAL ASSOCIATION OF CHIEFS OF POLICE. Annual Convention (McAllister Hotel). Exec. Sec., Edward J. Kelly, 1424 K St., NW., Washington 5, D. C.

***Oct. 29-Nov. 2—San Francisco**
AMERICAN PUBLIC HEALTH ASSOCIATION. Annual Convention (Civic Auditorium). Exec. Sec., Reginald M. Atwater, M.D., 1790 Broadway, New York 19, N. Y.

***Oct. 31-Nov. 2—Baltimore, Md.**
AMERICAN WATER WORKS ASSOCIATION—Chesapeake Section. Annual Convention (Hotel Belvedere). Sec.-Treas., C. J. Lauter, 6955 33rd St., NW., Washington, D. C.

***Nov. 7-9—Roanoke, Va.**
AMERICAN WATER WORKS ASSOCIATION—Virginia Section. Annual Convention (Hotel Roanoke). Sec.-Treas., W. H. Shewbridge, State Health Dept., State Office Bldg., Richmond, Va.

***Nov. 12-14—Winston-Salem, N. C.**
AMERICAN WATER WORKS ASSOCIATION—North Carolina Section—and NORTH CAROLINA SEWAGE AND INDUSTRIAL WASTE ASSOCIATION. Annual Convention (Hotel Robert E. Lee). Sec.-Treas., (AWWA), E. C. Hubbard, State Board of Health, Raleigh, N. C.

***Nov. 12-16—Miami, Fla.**
AMERICAN INSTITUTE OF PARK EXECUTIVES. Annual Convention (McAllister Hotel). Exec. Sec., Weldon B. Wade, 30 N. LaSalle St., Chicago 2, Ill.

Nov. 18-20—Lafayette, Ind.
INDUSTRIAL RECREATION CONFERENCE. Annual Convention (Purdue University). Information from Industrial Recreation Conference, Technical Extension Division, Purdue University, Lafayette, Ind.

***Nov. 25-28—Cincinnati, Ohio**
NATIONAL ASSOCIATION OF CIVIC SECRETARIES. Annual Convention (Netherland-Plaza Hotel). Pres., Ronald E. Gregg, 417 Huron St., Toledo 4, Ohio.

***Nov. 26-28—Cincinnati, Ohio**
NATIONAL MUNICIPAL LEAGUE. Annual Convention (Netherland-Plaza Hotel). Exec. Sec., Alfred Willoughby, 299 Broadway, New York 7, N. Y.

Nov. 26-29—Dallas, Texas
NATIONAL TAX ASSOCIATION. Annual Convention (Hotel Adolphus). Sec., Ronald B. Welch, Box 1799, Sacramento, Calif.

Elements of Refuse Collection and Disposal

(*Continued from page* 120)

The brush is always large and bulky, and difficult to handle except by burning. East Orange, N. J., however, has met this problem by the use of an Asplundh chipper to pick up the brush, grind it into small bits, and load it into a truck body. The chipper can handle brush with limbs 4 inches in diameter. Harry E. Turner, Forester for the East Orange Shade Tree Commisssion, estimates that one load of chipped brush is the equivalent of four to five loads by normal truck method.[16]

Additional Problems

The collection of small dead animals is another annoying problem that faces the city official, particularly in the Southern area of the United States, where decomposition is rapid. Richmond, Va., developed a practical answer to the problem by the construction of what Robert S. Hopson calls a "small animal hearse."[17] Mr. Hopson is Chief of the Bureau of Operations, and it was he who developed the truck body.

The "hearse" is built on a pick-up truck. It has a body insulated by two inches of rock wool and a refrigerator-type door. Dry ice is hung from the ceiling in an open-mesh sack to keep temperature low. Thus, a dead animal can be put in the truck and the decomposition will stop so that the disposal can be effected quickly and easily. Mr. Hopson's crew have to pick up 2,000 dead animals per month.

Fort Worth, Texas, also operates a "Dead Animal Collection" through its Waste Disposal Division. It uses two trucks equipped with radio receivers and picks up approximately 60 dead animals daily.

So with this discussion of special refuse problems, we bring to a close this presentation of refuse sanitation. It is a tremendously important subject that touches the lives of people in a municipality more consciously than any other service.

Thomas Alva Edison once said that genius is 1% inspiration and 99% perspiration. A military commander once told us that a successful military order is 5% giving the order and 95% seeing that it is executed properly.

So it is with refuse collection and disposal. A municipality needs a practical, single method thoroughly and meticulously executed to have a commendable program in this field of sanitation.

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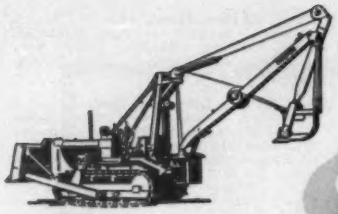
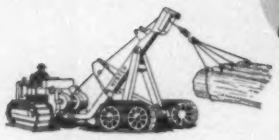


HYSTAWAY
EXCAVATOR - CRANES



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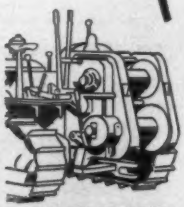

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Municipal and Civic Publications

Municipal Law in 1950

MUNICIPALITIES AND THE LAW IN ACTION, 1951 EDITION—*Charles S. Rhyne, Editor. Published by the National Institute of Municipal Law Officers, 730 Jackson Place, NW., Washington 6, D. C.* 402 *pp.* $10.

Reports on city civil-defense problems are featured in this new edition of *Municipalities and the Law in Action*, an outstanding reference work on municipal legal developments and trends. The list of authors includes city attorneys throughout the nation.

The committee reports of the National Institute of Municipal Law Officers' 20 committees are reproduced in the volume, as well as many other papers specially prepared by NIMLO members for publication. Among the topics covered are: municipal taxation and revenue problems; city, state, and federal relations; local control of communists; building codes and fire prevention ordinances; annexation; airports; public housing; zoning and planning; civil liberties; public utilities, and rate cases.

The well-indexed volume maintains the high standards it has established in previous years, and should be on every city hall bookshelf.

Benefit Assessments for Parking Facilities

SPECIAL OR BENEFIT ASSESSMENTS FOR PARKING FACILITIES—*By David R. Levin and Conya Hardy. The Urban Land Institute, 1737 K Street, NW., Washington, D. C. Technical Bulletin No.* 15. *April* 1951. 8 *pp.* $1.50.

An objective and authoritative analysis of past and present experience in benefit-district financing as applied to parking. The bulletin covers such aspects as enabling legislation, financing provisions, methods of assessment, court cases, and current operating experience. The relative merits of the parking benefit district are analyzed and suggestions made for further development of methods.

This bulletin should be of particular value to public officials, merchants, and commercial-property owners who are seeking practical methods of solving the off-street parking problem in their municipality of commercial district.

Municipal Annexation Procedures

ANALYSIS OF ANNEXATION IN MICHIGAN TOGETHER WITH A COMPARISON OF ANNEXATION IN OTHER STATES—*By Robert E. Fryer. Published by the Institute of Public Administration, Bureau of Local Government, University of Michigan Press, Ann Arbor, Mich. Papers in Public Administration No.* 5. 1951. 58 *pp.* $2.

Of interest to citizens and officials of municipalities faced with the problem of extending their boundaries, this study first analyzes annexation procedures and mechanics in various types of municipalities in Michigan and the problems resulting from such annexation; gives a history of annexation experience in Michigan, 1937-1947, and then compares annexation procedures of other states. The findings and conclusions at the end recommend for Michigan a simplification and consolidation of the various laws applicable to annexation.

Fire Protection Through Building Codes

FIRE PROTECTION THROUGH MODERN BUILDING CODES—*By B. L. Wood. American Iron and Steel Institute, 350 Fifth Ave., New York* 1, *N. Y.* 1950 *Edition.* 156 *pp.*

The purpose of this book is to assist in the rationalization and the modernization of fire-protection regulations. By correlating the pertinent scientific data which have become available in recent years, clearer thinking in the preparation of fire-protection regulations for building codes may be stimulated.

This book concentrates on features entering into fire hazards and fire protection regulations which have proved difficult and confusing to members of code-writing committees.

Diesel Engines

STANDARD PRACTICES FOR LOW AND MEDIUM STATIONARY DIESEL ENGINES—*Diesel Engine Manufacturers' Association, 1 North LaSalle St., Chicago* 2, *Ill. 2d Revision.* $5.

This book is a second revision, made necessary, in the opinion of the Association, because of advances in diesel-engine manufacture. The first edition appeared in 1936. The first revision was in 1946. The Association has designed the text for consulting engineers, engine operators, and as a reference for college and university training.

Toll Roads

TOLL ROADS—*By Wilfred Owen and Charles L. Dearing. Brookings Institution, 722 Jackson Pl., NW., Washington* 6, *D. C.* 196 *pp.* $2.50.

This book, resembling a report more than a text, examines the toll-road principle and, in general, doesn't like it. It can be applied only to a limited amount of rural roads and is no solution at all to the problem of city streets. The financing cost also is higher, and the cost of toll collection is a substantial item. However, not all is critical. The authors state that the arguments opposing the use of toll should not preclude their serious consideration.

Municipal Power Plants In Pennsylvania

MUNICIPALLY OWNED ELECTRIC PLANTS IN PENNSYLVANIA—*By John H. Ferguson and Charles F. LeeDecker. Pennsylvania Municipal Publications Service, State College, Pa.* 1951. 137 *pp.*

This is a comprehensive analysis of 40 Pennsylvania boroughs in the field of municipal utility ownership and operation. It takes its place as a companion volume to *Municipally Owned Waterworks in Pennsylvania*, by the same authors, which was published in 1948.

On the important question of rates, the study makes it evident that municipal electric rates have been kept unnecessarily high as a means of lowering taxes—a policy which the writers question. They would prefer a rate structure that will produce only enough revenue to pay interest, amortize indebtedness, and pay all legitimate operating costs. The writers declare, "This should permit most boroughs with electric plants to reduce electric rates promptly and thereby increase consumption and otherwise stimulate economic activities in the borough."

National Housing Policy

A REPORT TO THE NATION, NATIONAL HOUSING POLICY CONFERENCE—*By the Hon. Joseph M. Darst, Mayor of St. Louis, Chairman.* 1951. 96 *pp.*

The National Housing Policy Conference was called by a group of prominent St. Louis business and civic leaders in an attempt to define the nation's over-all housing problem in the light of the present semi-wartime economy. *A Report to the Nation* is a verbatim recording of the proceedings of the various sessions held March 19 and 20, 1951, in St. Louis, which included addresses by such authorities as Raymond M. Foley, Administrator, HHFA; Harland Bartholomew; Richard J. Gray, President, Building and Construction Trades Department, AFL, and William J. Levitt, President, Levitt & Sons.

A slip-in pamphlet outlines the Policy and Resolutions arrived at by the conference.

Municipal Study of London, England

THE CORPORATION OF LONDON, ORIGIN, CONSTITUTION, POWERS AND DUTIES—*Oxford University Press, 114 Fifth Ave., New York* 11, *N. Y.* 1950. 251 *pp.* $3.

Those interested in comparative local government and the preservation of civic democracy will find this book of value. Many British institutions, such as the Corporation of London, are the result of centuries of development.

New Towns for America

TOWARD NEW TOWNS FOR AMERICA—*By Clarence S. Stein. Available from Public Administration Service, 1313 E. 60th St., Chicago* 37, *Ill.* 1951. 215 *pp.* $5. (*Discounts for quantities.*)

This book is based on articles first assembled in the British quarterly, *Town Planning Review*, published by the University Press of Liverpool, and previously reviewed in these pages. Fortunately, arrangements were made to publish the material in book form, with the Public Administration Service in Chicago acting as agents for the Western hemisphere. The final product is a handsome one, containing 170 illustrations in all, including many half-tone illustrations, floor plans, maps in color, and detailed charts. Lewis Mumford has written an outstanding introduction which gives real meaning and setting to the many projects described.

The book records the author's experience in the creation of housing projects and communities. It follows these experiments from Sunnyside, N. Y., in 1924, to Baldwin Hills Village in Los Angeles in 1941, including Radburn, Chatham Village, Hillside, and the Greenbelt towns, and recounts how these communities were planned and built and financed, who lives in them, and the nature of life therein.

This record of what was accomplished, in spite of depression and the onset of war, and the critical appraisal of its success, will be an invaluable source of inspiration and information to architects, planners, and administrators concerned with decentralization and redevelopment.

Training for Recreation Leaders

LEADERSHIP IN RECREATION—*By Gerald B. Fitzgerald. A. S. Barnes & Company, 101 Fifth Ave., New York* 3, *N. Y.* 1951. 304 *pp.* $3.50.

Though designed primarily for college courses in recreation, this new textbook is a valuable source of information for those concerned with group recreational activities and for those conducting in-service educational programs. The author presents methods used to develop leadership ability and gives typical professional standards set up by various agencies, salary scales, and job descriptions. He discusses also interrelationships among physical educators, social group workers, and recreation leaders. Information on methods of recreation covers such subjects as how to determine interests for program planning; how to organize and use committees; how to direct club organizations, discussion groups, and adult-education programs; how to use volunteer leaders; how to supervise leaders and programs, and how to plan and conduct recreation conferences and institutes.

North American Conflagrations

CONFLAGRATIONS IN AMERICA SINCE 1900—*National Fire Protection Association, 60 Batterymarch St., Boston* 10, *Mass.* 1951. 65 *pp.* $1.

A record of the main conflagrations in the United States and Canada during the first half of the 20th Century, this booklet includes many excellent photographs of raging fires and subsequent damage, as well as tables showing time and place, property damage, persons killed, monetary loss, and factors contributing to the conflagration. The accompanying text analyzes conflagrations and suggests ways of preventing them.

State and Local Government Textbook

STATE AND LOCAL GOVERNMENT—*By Cullen Gosnell and Lynwood Holland. Prentice-Hall, Inc., Publishers, 70 Fifth Ave., New York* 11, *N. Y. June* 1951. 619 *pp.* $6.65.

Another textbook on state and local government, which focusses on the structure, functioning, and interrelationships of these governments, and their responsibilities to the people.

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Civil-Defense Training Films

NEW APPROACH NEEDED FOR CIVIL-DEFENSE TRAINING—*By Warren Cheney. Reprint of articles published in May and June 1951 issues of* THE AMERICAN CITY. *Available without charge from Editorial Department, 470 Fourth Ave., New York 16, N. Y.*

This reprint presents the case for a greatly intensified use of motion pictures in civil-defense training, and reviews a list of more than 20 films, available from a variety of sources, which should be of interest and value to local civil-defense personnel.

Architectural Aspects of Civil Defense

CIVIL DEFENSE, THE ARCHITECT'S PART, DEFENSE MEASURES IN MULTI-STORY BUILDINGS; DEFENSE MEASURES IN SCHOOLS—*Publications Order Department, The American Institute of Architects, 1741 New York Ave., NW., Washington 6, D. C. 1951. Pamphlets available at 25 cents apiece.*

The first of these pamphlets describes concisely the assistance which architects can render to local civil-defense organizations in terms of building survey, organization, shelters, evacuation, housing, and repair of war damage.

The other two pamphlets describe principles of building protection and organization for multi-story buildings and schools.

Hospital Design

HOSPITALS, INTEGRATED DESIGN—*By Isadore Rosenfield. Reinhold Publishing Corp., 330 W. 42nd St., New York 18, N. Y. Second Edition. 1951. 398 pp. $15.*

In revising this book, first published in 1947, every effort was made to integrate the latest information on hospital design with the latest information on hospital needs and related facilities. Purely architectural considerations such as planning for function, economy, orientation, lighting, details and finishes, and structural methods are discussed against a background of the problems peculiar to the hospital—the budget, furniture and equipment, mechanical plant, and services. Attention is given to location and space requirements of the complex parts of the modern hospital.

The material in the book extends beyond the hospital itself and relates the hospital not only to such elements as nurses' residences, teaching facilities, and laboratories, but to convalescent homes, rehabilitation centers, therapy departments, clinics, and even recreational facilities and chapels. Specialized hospitals are considered separately and in detail.

The book is illustrated with over 500 plans and photographs.

Vancouver Slum-Clearance Report

REBUILDING A NEIGHBORHOOD—*By Leonard C. Marsh. The University of British Columbia (The Bookstore), Vancouver, B. C. Research Publications No. 1. 1951. 110 pp. $2.15.*

This report on a demonstration slum-clearance and urban-rehabilitation project in a key central area in Vancouver, is one of the most comprehensive and systematic studies which have ever been made of a selected area in a major Canadian city. The booklet includes 24 photos, many of them showing blighted areas and slum conditions in Vancouver, and includes 14 architectural drawings of housing and layout plans. The report presents a bold project—showing the opportunities of long-term projection under current Dominion-provincial financing arrangements.

Community Plan for Sparta, N. J.

A COMPREHENSIVE PLAN FOR SPARTA, N. J.—*By Scott Bagby and Weaver Pangburn, 14 Mountainside Park Terrace, Upper Montclair, N. J. 1951. Maps. 38 pp. $3.*

This planning report is of special interest because it represents an attempt to differentiate in planning between the problems and needs of both summer-resort and year-round development within the same community. Sparta covers 38 square miles, much of which is vacant. Presented in the report is an original solution for meeting the situation through the combined use of zoning, subdivision controls, and occupancy certificates.

(*Continued on page 157*)

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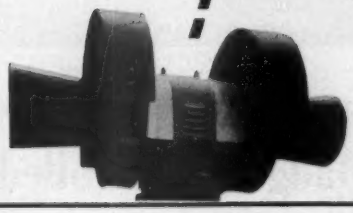

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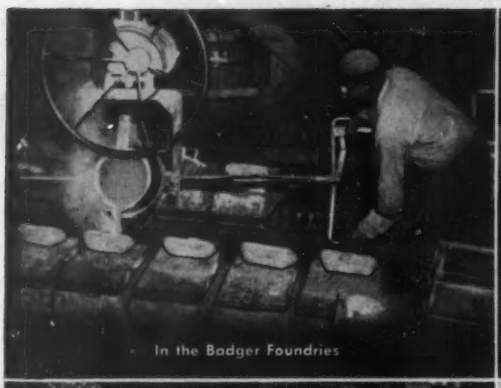

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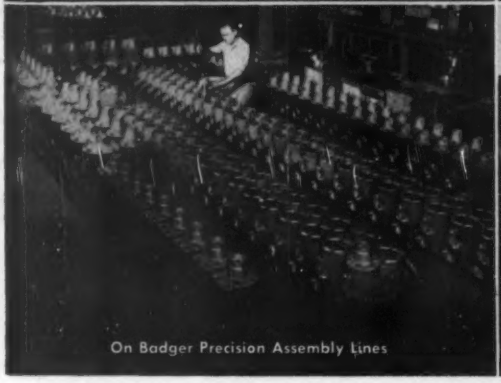

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(*Continued from page 154*)

Seattle Civic Textbook

LIVING IN SEATTLE—*By Lorin Peterson and N. C. Davenport. Seattle Public Schools, 815 4th Ave., North, Seattle 9, Wash.* 1950. 272 *pp.*

This is a textbook designed for use in the Seattle Public Schools. It was prepared with the help of the Seattle Municipal League, and therefore represents a practical approach to aspects of local government. There is an emphasis on citizenship in action, and the book seeks to capture the student's interest in public problems.

Among the 21 chapters on local government in the book are excellent ones on providing water supply, fighting fire, transporting people, and planning the city. Appendix A contains a description of historical monuments and memorials, and Appendix B contains the text of the Seattle charter.

Newport News Report On Housing Development

ACROSS THE TRACKS IN NEWPORT NEWS—*Newport News Redevelopment and Housing Authority, P. O. Box 77, Newport News, Va. H. W. Blandford, Executive Director. March* 1951. 20 *pp. Available upon request without charge.*

Stressing the theme, "There's a big difference . . ." between the lives of dwellers in slum areas and those in the housing projects of Newport News, this well-illustrated, easy-to-read report makes excellent use of photos and text. The report should also make the program of the Redevelopment and Housing Authority considerably easier as it gets into the construction phase for its new low-rent housing projects.

Michigan City and Village Manuals

A MANUAL OF CITY GOVERNMENT IN MICHIGAN; A MANUAL OF VILLAGE GOVERNMENT IN MICHIGAN—*By Claude R. Tharp. Bureau of Government, Institute of Public Administration, University of Michigan, Ann Arbor, Mich. University of Michigan Press.* 1951.

Two excellent loose-leaf manuals which should be of great service to local-government officials in Michigan. They make available in compact and carefully organized form, concise and comprehensive descriptions of city and village government in Michigan, including an ample array of citations on powers and duties under the various types of government, and helpful tables which show property taxes and indebtedness authorized and property tax calendars.

New Jersey Development Plan

DEVELOPMENT PLAN FOR NEW JERSEY—*Planning Section, Division of Planning and Development, Department of Conservation and Economic Development, Trenton, N. J.* 1950. 35 *pp.* $2.

This report deals with state-wide problems directed toward long-range planning for the sound development of the state. To some extent, it is a concise recapitulation of various surveys and studies previously undertaken in New Jersey. A large map of the state, accompanying the report, is a diagrammatic presentation of the New Jersey State Development Plan.

Indiana Local Plans

WABASH MASTER PLAN, 1950. A GUIDE FOR FUTURE MUNICIPAL DEVELOPMENT. December 1950. LAND USE AND ZONING, PART OF MASTER PLAN FOR HAMMOND, IND. 1950. *Reports available from Lawrence V. Sheridan, Old Orchard Road, Brendonwood, Indianapolis 44, Ind.* $1 *each.*

These reports are interesting because of the effort which has been made in them to bring out clearly the principles underlying the plan and the proposals for future development. In the appendices of the reports are a series of charts which are a part of the zoning ordinance. The ordinance defines the boundaries of districts on the maps, but the specifications are all on the charts. The approach is through the type of use rather than the district. An applicant for a permit need look no farther than the chart to find out all he needs to know about the ordinance insofar as his particular building is concerned.

Personnel Training

TRAINING MUNICIPAL EMPLOYEES—*May 1951 issue of* Municipal Finance, *1313 East 60th St., Chicago 37, Ill. Subscription $1.50 per year, 50 cents per copy.*

The articles in this issue are on the following subjects:

Principles and Standards of In-Service Training, by Kenneth O. Warner.

Training for Municipal Employees in Canada, by Wilfred A. Greene.

Financial In-Service Training in San Diego, by John McQuilken.

Public Administration Intern Program, by Dorothy Woodford.

Municipal Finance Administration, by George C. Skillman.

How Florida Officials View Their Training Course, by Wylie Kilpatrick.

The Minnesota Municipal Finance Short Course, by C. C. Ludwig.

Organizing A Finance Officers Training Institute, by Edward J. Nowak.

In-Service Training in Nova Scotia, by U. J. Harrington.

Communities U. S. A.— A Quarterly Journal

COMMUNITIES, U. S. A.—*Spring 1951 issue of* A Journal of Community Development. *American Council for the Community, 119 East 19th St., New York 3, N. Y. 16 pp. Quarterly: annual subscription, $1; single copies, 35 cents.*

The second issue of this *Journal of Community Development*, published by the American Council for the Community, contains a variety of concise articles: a lead editorial by the late Edmund Ezra Day, president of Cornell University; report on a "Community Public Affairs Program" in Cleveland; "Self-Help to Better Home Towns," an article on the Georgia Power Company's work; "Community Development through Study Groups," by Richard W. Poston; "Neighborhood Councils in Action in Kansas City," by Hayes A. Richardson, and "Discussion Can Work." News notes on various community developments are also included.

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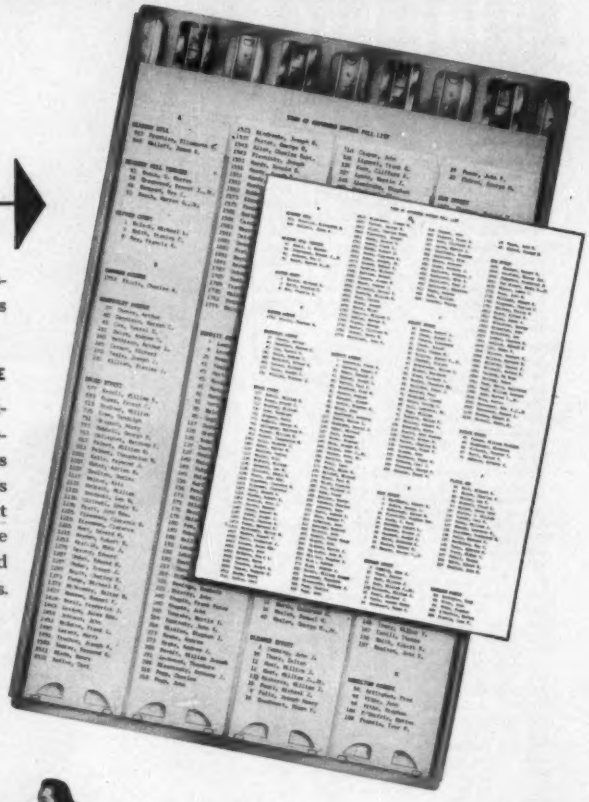

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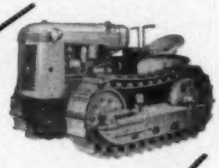

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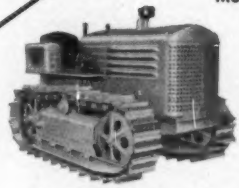

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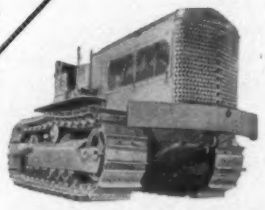
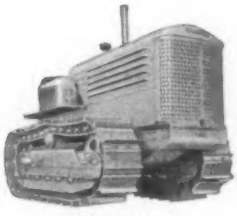


Model FDE—110 h.p. Diesel



Model D—61 h.p. Gas or Diesel

THE OLIVER CORPORATION

THE OLIVER CORPORATION

A complete line of industrial wheel and crawler tractors

Civil-Defense Apathy

(*Continued from page* 123)

week after the campaign started, listed more than 5,000 applications, about 1,500 more than the previous year's work had brought in. These figures, of course, do not include those who are automatically attached to a particular service by reason of their employment or special training.

City-Wide Publicity

The distribution of the school pamphlet was preceded by interview-type stories in the newspapers, telling the actual experience of men and women who had lived through bombing raids in England, Germany, China, the Philippines, and the atomic blasts in Japan. The military fliers who dropped the bombs also told their stories to the public. A series of coupons urging readers to sign up was printed next to the stories.

Striking posters were prepared and sent out with letters to industrial and manufacturing executives asking them to exhibit the posters to an estimated 150,000 workers. Posters of the same design were placed in 250 stores in outlying districts.

Double-size bus cards were placed in 500 buses, where 8,000,000 riders a month couldn't help but see them. The city's six radio stations carried the constant appeal to at least 100,000 listeners a day.

Television announcements were made daily, and two 15-minute feature programs a week emphasized civil defense. These TV appeals reached an estimated 54,000 viewers every day.

A specially-prepared, 40-second motion-picture trailer was shown in 24 Rochester theaters. These were directed to recruitment for particular services, and the copy was a strong appeal to file an application as soon as possible.

In all this promotion, the slogan was —*"Sign Up Before It Happens."*

Mock Air Raids and a Real Parade

A highlight of the campaign was the holding of six simultaneous demonstrations and mock air raids, on June 8, 1951. Strategically placed all over the city, they received much publicity and attention from the public.

A Speakers' Bureau set up by the Advertising Council helped to drive home the need for volunteers before all of the city's business and professional clubs.

The climax of the campaign was a civil-defense parade, in which school, fraternal, and military bands participated, together with volunteer firemen and regular and civil-defense auxiliary police. The equipment displayed included that of the public-works departments, and the ambulances and commercial and industrial vehicles which would help save lives and property in the event of a bombing disaster.

Meaning in Actual Results

With the campaign only in its initial phase, over 5,000 applications have been received through the school appeal program. Civil-defense recruiting headquarters have signed up 132, and newspaper coupons have brought in 219 applications in 17 days. There have been 67 telephone applications and 5 through other sources. Our hopes are very high, and I think that our experiment in publicity has been completely justified.

And why have we devoted all this energy to recruitment of volunteers? A civil-defense organization must of necessity be created by means of an expansion of existing services through the addition of trained volunteers, to "catastrophe size." The stronger and more active the volunteer forces, the stronger and more vital the whole organization.

It's as simple as that—and as difficult as that.

EDITOR'S NOTE: City Manager Cartwright tells THE AMERICAN CITY that he will be glad to send some of the Rochester printed matter to any reader of this magazine concerned with civil-defense problems.

Los Angeles Tests Traffic Paint

(*Continued from page* 137)

their steel plates, are fitted to a rocker-arm which automatically dipped into a tank of distilled water every four or five minutes—alternately wetting and drying the sample—through a 28-day test period. The test is conducted in the open air, atop the Bureau of Standards building in downtown Los Angeles. Lab men have found that inferior paints crack, peel, and slough off within 10 days.

Last June, the purchasing agent, A. J. Holm, invited paint manufacturers to submit samples of their street paint for actual application. Each paint maker was allowed to apply his own 25-foot 4-inch stripe; otherwise the city would apply it. Each stripe was coded and numbered. After 10 months of use, several of the stripes had worn away and it was evident which paints were standing up well.

Traffic Engineer Dorsey, in reviewing these tests, explains Los Angeles' approach. "Last year we called paint manufacturers and told them, 'You build a paint, we'll test it, and then we'll tell you what it's worth!' In other words, Los Angeles doesn't want to know the price—though the price must be within reason—until after it has tested and evaluated each product. Incidentally, the stripe test and the lab-wear test are two simple devices which any city, regardless of size, can set up inexpensively. Before long we expect to have a correlation between wear-test wheel revolutions and actual street longevity which can be passed on to other cities for a definite, speedy yard-stick to judge street-paint quality."

Cities Win Safety Awards

THE State of Kansas, its largest city, Wichita, and Belmont, Mass., have been adjudged the safest for pedestrians during the year 1950, the American Automobile Association announced in June.

Kansas was awarded the Grand Award among all states and first place among the states in its population group, while Wichita and Belmont were awarded the Grand Award for cities over and under 100,000, respectively, in the A.A.A.'s National Pedestrian Protection Contest.

A total of 1,873 cities and states were entered in the 1950 Contest, which has been held annually since 1939 in the interest of cutting down pedestrian traffic accidents and deaths. Ten judges, all prominent in the fields of highway transportation and traffic safety, made the choices.

Lou E. Holland, president of the A.A.A., announced that pedestrian traffic fatalities in 1950 totaled 8,800, a reduction of 44% since 1937, when they were at their all-time high. Non-pedestrian traffic deaths have increased 5%, he added.

Chicago was first in cities of over 1,000,000. Other first-place winners in the population groups were: 500,000-1,000,000, Minneapolis; 200,000-500,000, Rochester, N. Y.; 100,000-200,000, Wichita; 50,000-100,000, Jackson, Mich.; 25,000-50,000, Belmont; 10,000-25,000, Bismarck, N. D. and under 10,000, Little Falls, Minn.

The Grand Award winning cities and states were honored principally for their low pedestrian death rates. Belmont, with over 27,000 population, had no pedestrian traffic deaths and only 18 injuries. Wichita, with over 166,000 inhabitants, had a low death rate of 0.6 per 1,000 persons, while the State of Kansas had a rate of 2.2 pedestrian traffic fatalities per 1,000 persons.

The cities and states are judged for their death and injury record, their system of keeping accident records and their general pedestrian-protection program. This includes public information, school safety, organization, engineering, and legislation and enforcement directed to pedestrian safety.

The question is not whether the atomic bomb is here to stay; the question is, are we?

Joseph P. Anderson

Civil Defender

A Receiver for all defense applications!

WHEN you need command control of all the elements in your civil defense area, let electronics work for you—like this:

Install a Civil Defender receiver with each group to be reached. This receiver is a slave unit. It hears only what you want it to hear. It allows civil defense headquarters to broadcast messages to all groups at once, or to separate groups individually. The receiver is inactive until turned on by headquarters.

The Civil Defender, a unique G-E development, is activated at the press of a button. You can use it to start and stop air raid warning devices automatically and simultaneously.

Every alert community official should see this remarkable device in action. The G-E office near you will arrange a demonstration. For bulletins, wire or write us: *General Electric Company, Section 1071, Electronics Park, Syracuse, New York.*

Your G-E Communications Man will demonstrate. Why not call him now?

You can put your confidence in—

GENERAL ELECTRIC

At TAXI Dispatching Boards . . .

at HIGHWAY Departments . . .

at POLICE and FIRE Headquarters!

Catalogs for You

(Continued from page 30)

Write directly to the manufacturers, or use coupon on page 21

Transfer Pumps for Bituminous Products

686 With Rosco's skid-mounted, gasoline-powered portable pump, one can transfer bituminous material from tank car to storage tank, or to a distributor, to drums or containers. The pumping unit comes in two sizes, rated at 100 or 350 gpm. Data Sheet 551B describes it in detail. Write to Rosco Mfg. Co., 3124 Snelling Ave., Minneapolis 6, Minn., for your copy.

Water-Meter Discs

687 The Hanks Nowarp disc for water meters is able to endure hot water to 300 degrees temperature without injury. It is an inert material, not susceptible to expansion or contraction, and will not absorb water. The equipment has its own built-in self-lubricating quality which decreases frictional drag and insures smooth, and easy operation. For literature, write to The Fred W. Hanks Co., 646 E. 106th St., Cleveland 8, Ohio.

Office Machine Stands

688 Tusco stands are adaptable to over 95% of all office machines. According to the Tubular Specialty Mfg. Co., 1940 Stanley Ave., Detroit 8, Mich., they provide a combination of strength, stability, operator comfort, and beauty. The stands are equipped with an adjustable ball foot to provide solid support for the heaviest, most active machines on the most uneven floors.

Warning Sirens

689 The Sireno Co., Inc., 214½ William St., New York 38, N. Y., on request will send Catalog "A" which describes its powerful area warning sirens from ½ to 5 hp. The manufacturer reports that recent tests gave 5-hp Sireno the highest rating.

Solve Your Pipe Problems

690 If you have them, you may find the solution by writing to the Warren Foundry and Pipe Corp., 55 Liberty St., New York 5, N. Y., or at 75 Federal St., Boston, Mass. Warren cast-iron pipe and fittings can be supplied in sizes from 2 to 84 inches with all types of joints. Pipe products include bell and spigot, flange, mechanical joint and flexible joint.

Steel Tanks Last Longer With This Process

691 You are surer of a long-lasting water tank if the steel is treated by the Phoscote process. This removes mill scale from steel and provides a better bond between paint and metal. According to the Chicago Bridge and Iron Co., 2127 McCormick Bldg., Chicago 4, Ill., steel treated by this process does not corrode as fast as the plates in tanks built of untreated steel, and the paint lasts longer.

Joints for Water Mains

692 Leadite for jointing cast-iron water mains is made by The Leadite Co., Girard Trust Co. Bldg., Philadelphia 2, Pa. It is shipped in powder form and packed in sacks of 100 pounds net. The product is melted and poured and requires no digging of large bell-holes.

New Guide for Meters

693 A new publication, Industrial Meter Bulletin No. OG400, has been issued by the Rockwell Mfg. Co., Pittsburgh 8, Pa. It is a guide for the proper selection of meters for measuring more than 200 liquids with varying corrosive characteristics. Included are data on liquids from absorption oil to zinc chloride. Also discussed are Rockwell meters in sizes from 12 to 3 inches.

See page 167 for more Bulletins

Revere ELECTRIC MFG. CO. CHICAGO

EVERYTHING IN LIGHTING

WHITE-WAY PYLON-LITES
Efficient under all weather conditions. For series or multiple circuits. LIGHTS OF BEAUTY!

Street - Airport - Sports - Play - Protective

REVERE Hinged Street Lighting Standards — Single and Double Arm One-piece Octagonal Steel Standards — Luminaires — Regulators—Transformers and Controls — Buy from one source and you get a better—job—no divided responsibility—all equipment is perfectly matched.

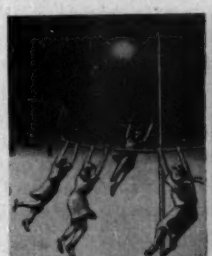
SAFE SERVICING

ELIMINATES ELEVATORS
One-man Servicing Job — Here's the Standard in lowered position. No expensive elevator equipment needed to keep floods at highest efficiency —

PENDANT MOUNTING OR SIDE MOUNTING
LUMINAIRES
for incandescent or Mercury Lamps

WRITE TODAY FOR DATA
We produce lighting for every municipal need. Economically engineered by Revere.

FINISHING RINGS
For Sealed Beam Lamps

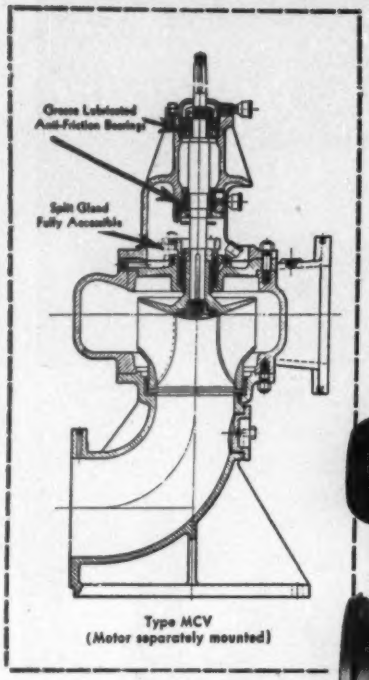

Open and Enclosed Floods for Playgrounds

A New Kind of Safety Island Lighter

Airport Runway Floods Gate Markers, Etc.

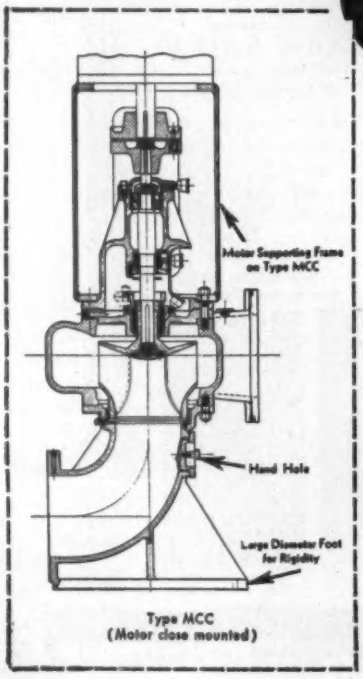
These PYLON-LITES Come With 1, 2 or 3 LUMINAIRES

REVERE ELECTRIC MFG. CO.
6015 BROADWAY — Indoor and Outdoor Lighting Equipment for Every Need — CHICAGO 40, ILL.



Type MCV
(Motor separately mounted)

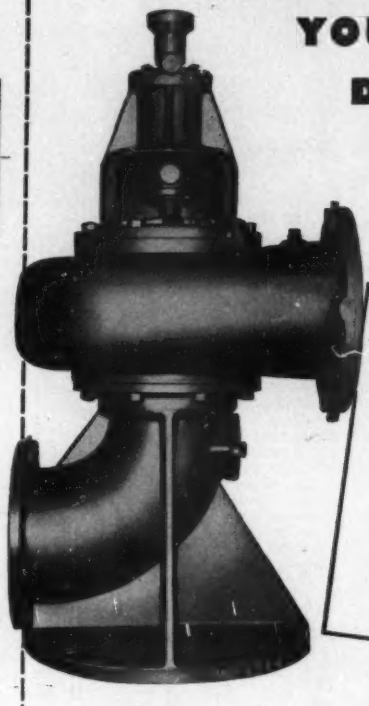
Mixflo, Type MCV
with base elbow suction nozzle



Type MCC
(Motor close mounted)

There's a Mixflo Pump

THAT WILL MEET YOUR SEWAGE DISPOSAL NEEDS— *Exactly!*



Worthington Offers The Largest Selection Of Sizes And Types In A Single Line

Non-clogging two-vane closed impellers, grease-lubricated anti-friction bearings, easy accessibility to the split stuffing-box gland and impeller eye . . . are typical of the many Worthington Mixflo features assuring low-cost, trouble-free sewage pumping.

No Need To Guess!

And along with performance-proved excellence in every mechanical and hydraulic detail, the Mixflo line offers you the widest choice of sizes and types in the field. So there's no need to compromise on a pump that's "about" right — you're sure to find a Mixflo that's *exactly right* for your particular requirements.

Bulletin W-317-B16 describes the various Mixflo types made in 10", 12" and 16" sizes. Worthington also builds Mixflos in sizes up to 84", with open or closed impellers and for horizontal or vertical drives. For more Mixflo facts that prove *there's more worth in Worthington*, contact our nearest District Office. Or write to *Worthington Pump and Machinery Corporation, Harrison, N. J.*

WORTHINGTON

W0.2

Free Catalogs

Write directly to the manufacturers, or use coupon on page 21

Pages Photographed While Being Turned

694 The Recordak Model D Micro-File machine photographs pages as fast as they are turned. Every time the operator turns a page, he depresses a convenient foot pedal, and a photographically accurate and complete record of the two facing pages is obtained. The Recordak Microfilmer is used to record unbound documents up to 14 inches wide. Complete information will be sent by the Recordak Corp., subsidiary of the Eastman Kodak Co., 444 Madison Ave., New York 22, N. Y.

Cast-Iron Fittings

695 A complete and detailed catalog on cast-iron fittings for water-supply needs will be furnished by Trinity Valley Iron and Steel Co., P. O. Box 664, Fort Worth, Texas. Representative of the information the catalog carries are data on bell-and-spigot fittings, fittings for asbestos-cement pipe, flanged fittings, manholes, grates, valve boxes, and meter boxes.

Airport Runway Light

696 Economy and flexibility are two features of the Crouse-Hinds Type HSL high-intensity airport runway light. Only one of the 95-watt main beams is turned on in inclement weather, and only a 30-watt light in clear weather. The high-intensity beams can be individually adjusted for the most effective angle of toe-in and elevation for any particular airport and any season of the year. Two other models are Type HRC, a controllable beam bi-directional high-intensity runway light, and HRL, a fixed-focus bi-directional high-intensity runway light. Further information will be supplied by the Crouse-Hinds Co., Syracuse 1, N. Y.

2-Way Radio For Civil Defense

697 Motorola FM 2-way radio is adaptable to civil defense and industrial applications. It can be employed as a portable base station, mobile dash mount, mobile trunk mount, and 2-way radio telephone. Manufactured by Motorola, Inc., 4545 Augusta Boulevard, Chicago 51, Ill., the machine has a Uni-Channel Sensicon dispatcher which gives permanent selectivity, voice dominance over noise, and greater freedom from interference.

Pest-Control Equipment

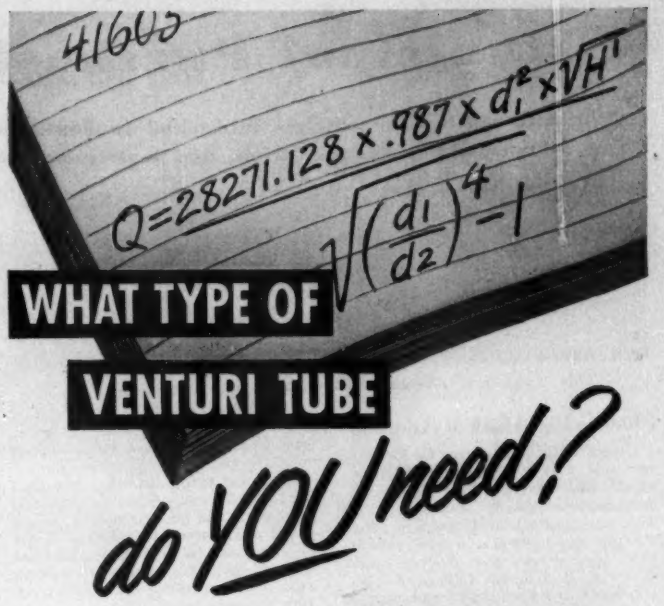
698 The Hardie Mfg. Co., Hudson, Mich., has prepared a new bulletin of its various kinds of equipment for applying pest-control chemicals. Among the products listed are air-blast concentrate sprayers, high-pressure sprayers in 11 different pump sizes, air-blast blowers and engine units.

Street Light Features Automatic Latch-on Device

699 The AK-10 street-lighting unit manufactured by the Westinghouse Lighting Division, Edgewater Park, Cleveland, Ohio, saves time on routine washing and relamping because of the automatic latch-on device. The heavy aluminum reflector provides longer life, greater mechanical strength, and a better reflecting surface. For a copy of bulletin B-4237, write to the Westinghouse Electric Corp., P. O. Box 868, Pittsburgh 30, Pa.

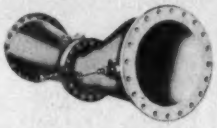
For Trickling Filter Beds Of Sewage-Disposal Plants

700 Natco Unifilter block underdrains for trickling filter beds of sewage-disposal plants are manufactured by the National Fireproofing Corp., 327 Fifth Ave., Pittsburgh 22, Pa. They are described in Bulletin UF-3. Salt glazed Unifilter blocks are one-piece underdrains made of de-aired, vitrified salt-glazed fire clay. They combine low absorption with great strength. Vitrified clay filter blocks are made from high-grade fire clay and are so designed as to provide both aeration and drainage in a single unit.



1. Steel plate tube with cast iron throat section for measurement of clear water, air or gases.

2. Cast iron Venturi Tube with hand holes and cleaning valves at main and throat sections, for municipal sewage and trade wastes.



3. Cast iron Venturi Tube with flat invert and single cleaning valve at main and throat sections. Specifically used for sludge.

4. Cast steel or cast iron Venturi for hot or cold water and adaptable for boiler feed high pressure service.

IT'S SIMPLEX
IT'S ACCURATE

SIMPLEX makes Venturi Tubes for measuring cold water, raw sewage, trade waste, sludge, process liquor, boiler feed, air and gases.

These tubes come in many sizes and different designs, some of which are pictured above. This means there's a particular tube to fit specific needs.

Write, stating your Venturi Tube requirements, to Simplex Valve & Meter Company, Dept. 7, 6789 Upland Street, Philadelphia 42, Pa.

SIMPLEX

VALVE AND METER COMPANY

Municipal Purchasing News

Information for officials interested in equipment and services for the construction, operation, and maintenance of municipal utilities

This is the new cast-iron pressure pipe plant in Anniston, Ala.

Modern Pipe Plant at Anniston

Centrifugally spun, Super De Lavaud cast iron pipe is coming off the lines of the new Alabama Pipe Co.'s plant in Anniston, Ala., in 18-foot lengths. This pipe is cast centrifugally in alloy steel molds, making a product that is chill free, dense, and of close-grain structure. Each length is annealed in an automatically controlled three-zone annealing furnace. Each zone is controlled independently by recording pyrometers.

The pipe is inspected and tested thoroughly before being released for shipment. Each length cast receives a hydrostatic test for 500 psi for ½ minute. Each pipe is subjected to a hardness test in three places by a scleroscope, and any pipe with a scleroscope reading above 30 is re-annealed or rejected. In addition to the above tests, a test pipe is selected from each 200 pipe made or fraction thereof. This includes every size on each casting date. Each test pipe is carefully checked for proper dimensions and metal distribution. A talbot strip is cut and the modulus of rupture and elasticity are calculated. In no event, is pipe shipped with MR less than 40,000 psi or ME greater than 12,000,000 psi.

The pipe is made in 4- and 6-inch sizes, 150- and 250-pound classes; and in 8, 10, 12, 14, 16, 18, 20 and 24-inch sizes, 150-, 200- and 250-pound classes, 18-foot lengths with bell and plain ends. Mechanical joint type is furnished through 12 inch.

Dust Control Agent Lasts Entire Season

Gulf Sani-Soil-Set eliminates dust annoyance completely immediately after application. Among the places it is used are aviation and athletic fields, bare ground around industrial plants, parks, playgrounds, schools, and railroads. It is free-flowing, easy, and pleasant to use. Manufactured by the Gulf Oil Corp., Gulf Building, Pittsburgh 30, Pa., this agent is inexpensive to use, lasts an entire season, reduces sun glare, helps safeguard health, and improves general appearance.

The product is a light-colored liquid compounded with a petroleum base and special chemicals. It has extremely low volatility and is insoluble in water.

According to the manufacturer, Gulf Sani-Soil-Set reduces maintenance and labor costs, and protects nearby garden plants and flowers. It is simple to apply, for it can be used on small ground by hand-sprinkling cans, and on larger areas with sprinkling trucks equipped with a power pump.

Special Rig Drills 5,000 Holes At Hyperion Sludge Plant

Installing approximately five miles of hand railing at the Hyperion Activated Sludge Plant at the City of Los Angeles, Calif., required drilling about 5,000 2-inch-diameter holes, 6 inches deep in concrete. A special rig was built by the National Steel and Shipbuilding Corp., San Diego, Calif., to handle the job. Termite rotary masonry drills were employed. These are made by the Concrete Termite Drill Co., Pasadena, Calif.

Powered with a 10-hp Wisconsin air-cooled engine, the rig was designed to drill one hole or two holes at a time under hydraulic pressure of 60 to 80 pounds. Drilling speed was approximately 10 holes per hour, 80 holes per 8-hour day. Each Termite drill was used for about 30 holes in the straight structural concrete.

Fire Chief John Butz (left) and Director of Public Safety Clarence H. Marks, stand beside Allentown's new fire truck.

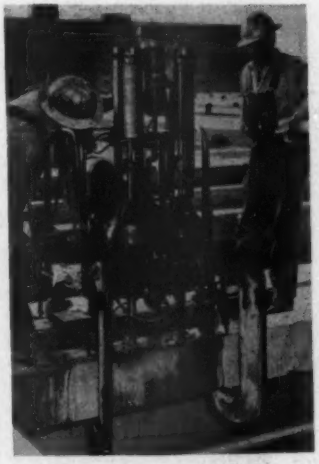
Builds First Fire Truck That Utilizes 3% Foam

The Mack Mfg. Corp., Empire State Bldg., New York 1, N. Y., is the first concern to build a pumper designed to use 3% foam liquid. Delivered to the Allentown Fire Department, Allentown, Pa., the new pumper is equipped with a 750 gpm fire pump, a 50-gallon foam tank to hold the 3% liquid, foam nozzles, proportioner, and all the necessary metering devices and controls.

Previously, the apparatus of pumper foam trucks was engineered for a 6% concentrate liquid. However, to obtain higher standards of fire protection, the company developed and manufactured a pumper to utilize 3% liquid.

The manufacturer reports that National Aero-O-Foam 3% was selected because half as much of it produces the same volume of foam as the regular 6% concentrate, enabling pumpers to have twice as much fighting power at less cost.

The National Foam System, West Chester, Pa., was the first to develop and make a highly concentrated foam liquid for producing mechanical foam.



This special rig was built to drill thousands of 2-inch diameter holes, 6 inches deep, in straight structural concrete which had been poured 8 months

OPERATORS SETTING NEW

Sweeping Records

WITHOUT LEAVING THEIR SEATS . . .

Fully Automatic*

with the LULL Fluid-Driven

SUPER SWEEPER

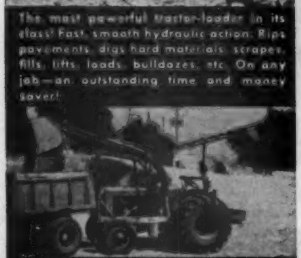
A Time-Saver for:

- Airports
- Streets
- Industrial Plants
- Universities and Colleges
- Parking Lots
- Institutions
- Strip Mining

LULL SHOVELOADER

Provides Unexcelled Power • Speed Flexibility

The most powerful tractor-loader in its class! Fast, smooth hydraulic action. Rips pavements, digs hard materials, scrapes, fills, lifts, loads, bulldozes, etc. On any job—an outstanding time and money saver!



Longest reach of any industrial wheel-type tractor-loader. Loads from rear to very front of truck body. A full load every time without pushing dirt forward in box. Get full details on the versatile Lull Shoveloader, today!

LULL POWER HYDRAULIC CONTROL RAISES AND LOWERS BROOM . . . or sets at any angle in SECONDS!

The operator of this powerful deluxe Lull Super Sweeper is setting new standards for sweeper performance. *He spends all his time sweeping and eliminates wasteful time-consuming manual adjusting operations.* He never needs to leave his seat to remove a pin—or turn a crank—or even stop his forward motion to change his sweeping angle. At his finger-tips are all of the controls for broom rotation, speed, height and angle settings, *independent of traction motion!* He can make any angle selection from 35° left to 35° right in seconds.

LULL POWER HYDRAULIC CONTROL makes this amazing sweeper performance possible. With super speed and super power in the broom, the operator can cover more ground in less time. No backing . . . no deadheading. The Lull Super Sweeper is the ideal 2-way sweeper. Yes, it is so fast, the operator often gets his sweeping done in half the time, making himself available for other work.

Use Lull Super Sweepers for every sweeping job from snow removal in the North to strip mining operations anywhere. A heavy duty sweeper designed for super performance, and priced within the means of all users of power sweeping equipment. Write for literature on 5', 6', 7' models.

MAIL COUPON TODAY for complete details.

LULL Manufacturing Company
3612 East 44th Street, Minneapolis 6, Minn.
Please send illustrated literature on:

☐ THE LULL SUPER SWEEPER ☐ 5' ☐ 6' ☐ 7'
☐ THE LULL STANDARD SWEEPER ☐ 5' ☐ 6' ☐ 7'
☐ THE LULL SHOVELOADER

Name..... Title.....

Company .....

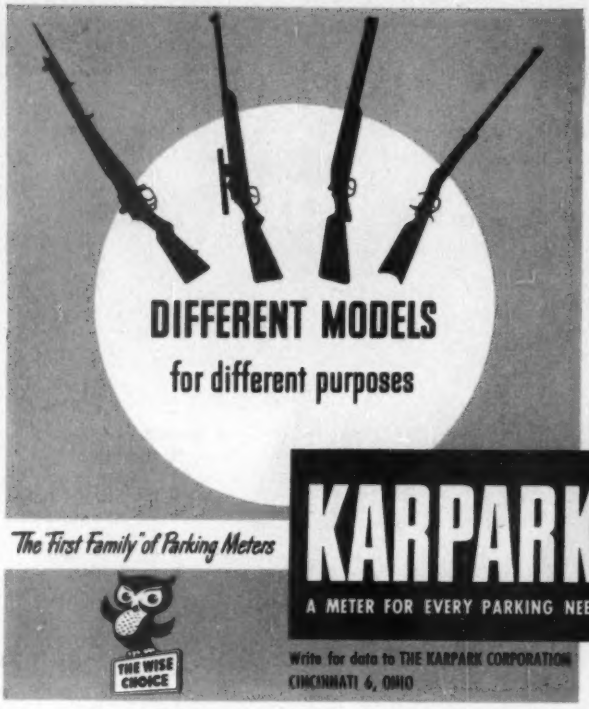
Address .....

City..... State.....

LULL Manufacturing Company
3612 East 44th Street Minneapolis 6, Minn.

Designers and Builders of
The Largest Line of Allied Equipment
for Industrial Wheel Type Tractors

SHOVELOADERS • UNIVERSAL LOADERS • FLUID-DRIVEN SWEEPERS • LULLDOZERS • SHOULDER MAINTAINERS



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for different purposes

"The First Family" of Parking Meters

KARPARK
A METER FOR EVERY PARKING NEED

THE WISE CHOICE

Write for data to THE KARPARK CORPORATION
CINCINNATI 6, OHIO

The Steel Head SUPERIOR
Supreme in strength, in resistance to damage and vandalism.

The Low Cost HUSKY
Makes Karpark depend ability available at a minimum investment.

The Versatile TWIN-O-MATIC
One installation times two cars; has every wanted feature.

The Adaptable UNIMATIC
Takes care of any parking situation—beautifully and efficiently.

STEEL STRAPPING
IS INEXPENSIVE FOR ATTACHING STREET SIGNS

Hundreds of city and state highway departments vouch for the economy and worker convenience of A. J. Gerrard modern strapping methods.

STAINLESS STEEL—
for permanent mounting.

GALVANIZED STEEL—for semi-permanent mounting (3 years).

Complete accessories in both metals.

For free demonstration or full information concerning the low-cost A. J. Gerrard method, write for name of nearest representative.

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Chain Link Wire or Iron in many styles, weights and heights

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Whatever you need, if it's made of iron, wire or bronze, it will pay you to contact Stewart. Literature sent on request. Please mention products in which you are especially interested.

Stewart IRON and WIRE FENCES

THE STEWART IRON WORKS CO., INC.
1821 Stewart Block
Cincinnati 1, Ohio
Experts in Metal Fabrications since 1886

New Small Drill Gives Heavy-Duty Service

The Cleco Division of the Reed Roller Bit Co., 5125 Clinton Drive, Houston, Texas, reports a new heavy-duty air-operated small drill designated as the 9DBW-28A. Features of this drill, normally found on larger drills, include: stub tooth gear train for sturdiness and long life, built-in lubricator for positive lubrication, a sealed spindle bearing, and a chuck guard for safety.

According to the manufacturer, this machine meets the need for a more powerful, longer-life drill that is easy to handle in close quarters. Its over-all length is 5¾ inches and it is only 13/16th of an inch from the side to the center of the spindle. The drill's high maintained speed under load of the Cleco air motor contributes to fast drilling.

Air-Raid Shelter Signs

Air-raid shelters are boldly and permanently marked in Albany, N. Y., by means of a new "Shelter Zone" decal sign created for the city's civilian defense program by The Meyercord Co., 5323 W. Lake St., Chicago 44, Ill, decal-comania manufacturer.

The yellow and black decals are prominently posted throughout the city, their arrows pointing to the nearest shelter in any area.

Approximately a foot square, Shelter Zone decals were designed with two arrows on each sign to cover the need for signs pointing left or right. The arrows point in opposite directions, one at the top of the sign and one at the bottom so that either may be trimmed off, leaving the device with only one arrow pointing in the desired direction. The weather-tested decal markers may be easily applied to any type surface. They are washable and economical.

Air-raid shelter decal sign which can be easily applied to any type of surface.

Public Relations Supervisor

William H. Shank, advertising manager of the company, has been appointed public relations supervisor of the Hardinge Co., Inc., 240 Arch St., York, Pa., according to an announcement by Harlowe Hardinge, president.

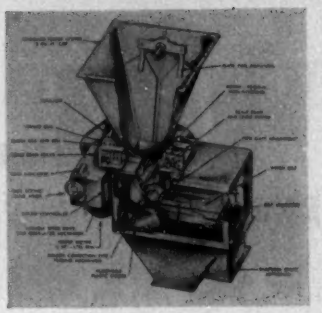
He will be responsible for supplying information concerning company public relations policies through the press and various publications. Mr. Shank also will represent the firm in industry and community relations activities.

President of De Laval Steam Turbine Company

J. P. Stewart is the newly elected president of the De Laval Steam Turbine Co., Trenton 2, N. J., and chairman of the board. He was formerly manager of the firm's Commercial and Marine Sales Division.

J. P. Stewart

Elected vice-president of industrial sales was W. A. Neumann, Jr., who will be responsible for the sales activity of the Commercial and the Standard Products Division. W. W. Smith, Jr., former president, was elected chairman of the board of directors.



New Dry Chemical Feeder

A new dry chemical feeder, the Chemizer, is reported by the Omega Machine Co., 358 Harris Ave., Providence 1, R. I. Although small, it claims a larger feeding capacity than many bigger feeders. The machine features continuous stream feeding at low or high rates, simplicity, compact design, easy installation, greater accessibility, ease of maintenance, infinitely variable feed rate, positive non-flood operation, and lower cost.

Known as Model 50-8, the Chemizer with its 8-inch belt and a 1-foot weigh-span will accurately and continuously feed and weigh from 5 to 5,000 pounds of filter alum per hour. It features the Rotolock positive nonflood mechanism combined with the vibratory mechanism.

Engineers, Designers, Draftsmen

Wanted

Engineers, Designers, and Draftsmen for Sewer & Sewage Treatment Plant Design. Several positions open in new Design Department.

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Board of Public Works and Sanitation

City Hall Indianapolis, Ind.

WORLD'S LARGEST TURBINE PUMPS

Interesting Data

ON THESE GIANTS IN THE WORLD OF MOVING WATER

LOCATION: Chelsea, N. Y., 60 miles north of City of New York.
PROJECT: Pumping plant to augment supply to Delaware Aqueduct from Hudson River.
CAPACITY: 100 million gallons a day to be supplied by 5 pumps. Sixth pump for standby use rated at same capacity, namely 14,000 gpm.
LIFT: Rated head 575 ft. but suitable for efficient operation for heads between 525 and 625 ft.
MOTORS: Six 2500 hp motors @ 900 rpm; 3 phase, 60 cycle at 4,000 volts.
PERFORMANCE: Overall efficiency required 75%. Pumps tested exceeded requirements, giving overall efficiency from 83.4% to 87.7%.
PUMPS: 6 Peerless close-coupled vertical turbine type; 5 stages, 36" diameter bowls. Discharge size: 24".
PURCHASER: Board of Water Supply, City of New York.
GENERAL CONTRACTORS: Tuller Construction Co.; A. S. Dillenbeck.

NEW 100 MILLION GALLON A DAY PLANT FOR THE CITY OF NEW YORK USES SIX 2500 HP PEERLESS VERTICAL CLOSE-COUPLED TURBINE PUMPS

Another first for Peerless,—first to apply 2500 hp to power a vertical close-coupled turbine pump. Six of these tremendous Peerless pumps, the world's largest, are now installed, tested, accepted and in operation at Chelsea, N. Y. to supplement the water supply of the City of New York. The complete success in the design, manufacture and application of these giant Peerless pumps, which in test exceeded required overall efficiency by 8 to 12 percentage points, is added evidence as to why Peerless is Amercia's largest manufacturer of vertical turbine pumps. Look to Peerless for continued leadership in the economical production of water for municipalities, industry and agriculture. Peerless turbine pumps are described in two bulletins, B-141 and B-159. Write for your copies today.

PEERLESS PUMP DIVISION
FOOD MACHINERY AND CHEMICAL CORPORATION

Address Inquiries to Factories at:
Los Angeles 31, California or Indianapolis 8, Indiana
Offices: New York, Atlanta, Fresno, Los Angeles, Chicago, St. Louis, Phoenix; Dallas, Plainview and Lubbock, Texas; Albuquerque, New Mexico.

This two-wheel street flusher has a capacity of 1,000 gallons.

Trailer-Type Street Flusher

The flexibility and economy of a trailer combine with efficient operation in the Rosco 2-wheel street flusher for cities, villages, municipalities, townships, and airports. Single-axle pneumatic mounted, it has a capacity of 1,000 gallons, is tractor drawn, and has an independent power unit. It can be employed for sprinkling, flushing, fire fighting, and power pumping.

The corrosion-resistant steel tank of the Model MFR is electrically welded; the valves are bronze-fitted, and the power pumping unit is mounted in front of the machine. It loads from hydrant through "ell" connection at top rear of tank or through a manhole without using a pump; it can pump from an outside source of supply, using a suction hose and engine exhaust-type pump primer, and it can discharge for transfer to another outside source, or into one or more hose lines.

The flusher is produced by the Rosco Mfg. Co., 3118 Snelling Ave., Minneapolis 6, Minn.

Newly Designed Walnut Honor Roll Plaque

The International Bronze Tablet Co., Inc., 150-154 W. 22nd St., New York 11, N. Y., has announced a newly designed solid walnut honor roll plaque. The solid walnut shield is 18 by 26 inches, ¾ inches thick, beveled, has a hand-rubbed finish, and is equipped with two hangers on the back, and three star ornaments on the face. Other size plaques are made to special order.

The heading design of this honor roll plaque is in sculptured bas relief and cast in special plastic material.

The plaque's heading design is in sculptured bas relief and cast in special plastic material and finished in rich simulated bronze colors. Nameplates are engraved on statuary brown Lamicoid plastic material. Lettering is filled in gold.

Accommodations for up to 60 plates in this size can be obtained, or more in smaller plate size.

The plaque with standard heading, stars, and hangers, is priced at $37.50, and nameplates at 75 cents each. Specially worded heading plate is $20 extra. Large organization nameplate at bottom of plaque is $5.

The bottom nameplate carrying company or organization name is also engraved and is optional.

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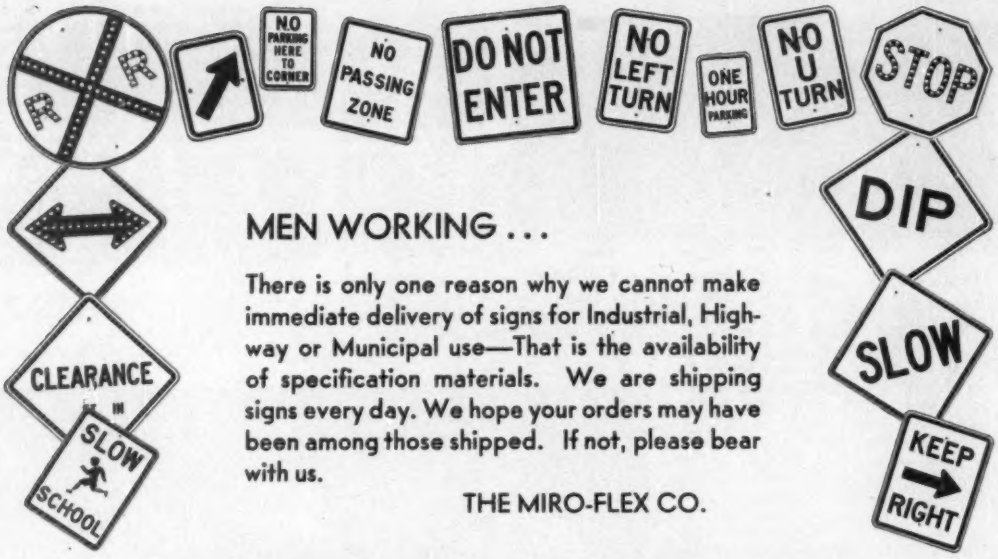

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MIRO-FLEX CO., INC.

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Heilliner Scrapers

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HEIL Quality PRODUCTS

You Move Dirt Faster, Costs are Lower

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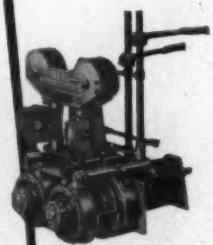
Cable-operated Bulldozers and Trailbuilders.



Power Control Units for all tractors.

Conversion Hoists—convert any fixed-bed truck into a time-saving dump unit.

THE HEIL CO. 50th Anniversary

Open-top Scrapers

Heil Light-Duty, Heavy-Duty, and Rock Bodies.

Hydraulic Bulldozers and Trailbuilders.

New Power Saw Carrier Is Designed for Safety

The new power saw carrier—equally adaptable to gas or electrically operated saw.

Safety to the operator is the outstanding feature of the new aerial power saw carrier which is being manufactured by the LeRoy Machine Co., Inc., LeRoy, N. Y. The inventor, Arnold Woleslagle, a treeman of 18 years' experience, spent many years on its development.

This machine provides a means of hoisting the saw as well as safely supporting its weight while in use. Whether the operator is in the tree or standing on the ground, he works entirely independent of the saw. He may let it go while he changes position; has only to guide it when cutting, and can adjust its height instantly without stopping his cut.

Easily handled by one man, the carrier consists of a steel plate with sharp-pointed prongs that grip into the tree; a crane arm to hold it away from tree and permit it to swing through a wide arc; a tension spring through which the hoisting rope is reeved, and a hand-operated clamp attached to hoisting rope to hold and adjust position of saw. A flexible cable passing through center of the spring provides an extra safety feature in case the spring breaks. The carrier is adaptable to either gas or electrically operated saw.

To Supply West Coast With Coal-Tar Pipeline Enamels

Initial West Coast production of Bitumastic coal-tar pipeline enamels will begin next fall at the new Fontana, Calif., plant of the Koppers Co., Inc., Pittsburgh 19, Pa., according to a report by Fred C. Foy, vice-president and general manager of Koppers' Tar Products Division.

The new plant, located on a 158-acre site near the Kaiser Steel Co. works, will be the first plant to produce coal-tar base pipeline enamels on the West Coast. It will make greatly increased supplies of these materials available to the western market. Previously, all of the coal-tar enamels had to be imported from eastern sources of production.

These hot-applied Bitumastic enamels first were employed in the middle of the 19th Century to protect steel and iron ships against corrosion by salt water and air.

First use of Bitumastic enamels on a transmission pipeline of the petroleum industry was made in California in 1914. Since that time, the coatings have been used throughout the country.

Eureka Sales Manager

Jonas R. Smith has become sales manager of the Eureka Fire Hose Division of the United States Rubber Co., Rockefeller Center, New York 20, N. Y. He succeeds Joseph H. Green, who retired after 46 years of service.

Mr. Smith joined the firm as a salesman in 1920, and was named branch manager in 1926, succeeding his late brother, John A. Smith.

Robert W. Ware succeeded Mr. Smith as manager in Philadelphia. He started with the company as a salesman in 1932. During World War II he did special work on tank trucks and synthetic rubber.

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STEEL CURB and GUTTER FORMS

FOR simple straight work or curved shapes, Blaw-Knox Curb and Gutter Forms save money on every job. Easy to set and strip, they complete the job faster and well within your estimate. Costly hand finishing is eliminated. You not only save on materials but finished jobs have a perfection impossible to achieve with wood forms. Maintenance is practically non-existent.

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WRITE FOR BULLETIN 2259 —28 pages illustrate form setups for every type of work, with complete instructions on how to use them.

CURB AND GUTTER FORMS. For combined concrete curb and gutter when curb is buttered.

STRAIGHT CURB FORMS. For curb with both faces vertical. Auxiliary bracing system for lateral stability.

SIDEWALK FORMS. Furnished for any required width or thickness of sidewalk.

FLEXIBLE STEEL RADIUS FORMS. For curved work of variable radius. Back forms, gutter forms and buttoned curb face form can be set to any desired radius.

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Individual parts are interchangeable not just for models of one or two years but over a period of 30 years. This is a basic company policy.

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This all-steel constructed building is fire-resistant and lightning-safe.

Inexpensive Material For School Buildings

Armco Steelox buildings provide the answer to low-cost modern classrooms and help meet the problems of high building costs and an increase in the number of students.

Steelox buildings are made of 18-and 20-gage Armco Zincgrip - Paintgrip steel. This durable material is two to three times as heavy as ordinary galvanized roofing and assures long life. The special steel permits immediate painting without pre-treatment.

Simplicity of Steelox Building Construction means faster erection and earlier use. The unique Steelox panel provides both structural support and finished surface. It replaces rafters, sheathing and roofing on the roof, and for sidewalks, it saves framing and exterior covering.

The Armco Drainage & Metal Products, Inc., 3141 Curtis St., Middletown, Ohio, has published an illustrated folder, *How to Give Students and Budgets a Break*, which points out how modern classrooms can be obtained at low cost with Armco Steelox buildings. Although low in cost, these buildings offer high quality, excellent appearance, and can be finished and equipped the same as any other building. The all-steel construction of these buildings is fire-resistant and lightning-safe.

Armco Steelox buildings save on maintenance. There is nothing to crack, warp, or rot, and no nails to pull loose. The joints can't open up or pull apart. They are designed to meet the highest standards of safety and convenience.

THE MODERN LAWN MOWER SHARPENER

CUTS MAINTENANCE COSTS

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Economically and Quickly Sharpens All Municipal Mowers

Priced $241.50 (less motor)

Sharpens All Reel Type Mowers • Hand, Power or Gang • 10 to 20 Minutes • No Dismantling No Extra Attachments Needed

All reel type mowers, from 5-inch edgers to 36 inch power mowers, are quickly sharpened to extreme ends of both left and right twist reel blades. Handle, wheels, roller and motor repair in place when sharpening is in process. Bed knife is sharpened in same brackets that hold mower in grinding position. No extra attachments required. One lever puts mower or bed knife in grinding position. 100% steel construction. Grinding head rides on five ball bearing races. Small, compact, easy to operate. Sharpens wood chisels, joiner knives and planer blades without extra attachments. Skate Sharpener Attachments available.

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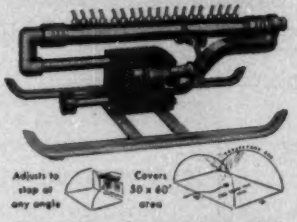
"Rains Over All"

300 GALLONS PER HOUR, FALL LIKE *Rain*



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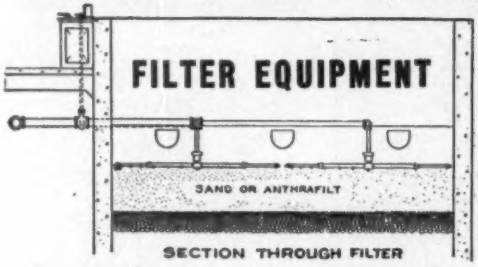
PALMER

FILTER EQUIPMENT



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In parks and on public grounds throughout America you will find smooth velvety lawns built with time proven Dickinson lawn grass seed. Quality seed, blended according to formulas that have been tested and improved throughout the years. Write for complete information.

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Metal Cased Cabinets
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Don't miss the descriptions of municipal equipment and services in this section. If any item particularly interests you, just jot down on the card the name of the equipment and its manufacturer, and we shall be glad to see that you receive further information concerning this item.

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THE AMERICAN CITY MAGAZINE

470 FOURTH AVENUE

Catalog Supply Dept. NEW YORK 16, N. Y.

Civil Engineering Students Win Eschenbrenner Awards

The Universal Concrete Pipe Co., 297 S. High St., Columbus 15, Ohio, presented the Eschenbrenner Awards to several senior civil engineering students in the amount of $500 each. Entries were received from engineering students in various states. Subject matter dealth with non-monolithic concrete products.

C. C. Walker

Chairman of the board of judges was Carl C. Walker, president of the Engineers Club of Columbus, Ohio. He is president and chief engineer of the Jennings-Lawrence Co., consulting engineers. Mr. Walker is chairman of the private practice section of the Ohio Society of Professional Engineers; past president of the local section of A.S.C.E.; a member of the National Society of Professional Engineers; the American Water Works Association, and the Federated Sewage Works and Industrial Wastes Association.

New Balanced Vault Cover Stresses Safety Features

The new Wachs safety counterbalanced vault or manhole cover is designed for safe and easy operation, according to the manufacturer, The E. H. Wachs Co., 1527 N. Dayton St., Chicago 22, Ill. Opening is accomplished by inserting a combination key-handle and giving it a half-turn. Lifting the cover to its vertical open position is a one-handed job because counterweights, which also hold the cover in a protective upright position, ease the load.

The product can be used for valve, meter, transformer, district governor vaults, or any other underground vaults of municipalities, utilities, and manufacturing plants.

Among the other features of the Wachs safety vault cover are: one man can safely raise the cover with ease; it cannot slam or drop into vault to cause injury or damage; it can be opened from inside of the vault by one man; positive tamper-proof lock; counterbalance structure protrudes less than 6 inches from wall; 30-inch square opening; heavy-duty cast iron frame and ribbed-steel cover machined for accurate rattle-proof fit, and Oilite bronze bushings in linkage.

A positive tamper-proof lock is among the features of this new balanced vault cover.

On Advisory Committee

Bryan Hendershott, assistant to the president of the Kerrigan Iron Works, Inc., of New York, Chicago, and Nashville, manufacturers of Weldforged street lighting standards, has been appointed to the Street and Highway Lighting Industry Advisory Committee.

This committee is being appointed by the National Production Act of 1950. It will serve in an advisory capacity with respect to the duties under that act.

Here's a fast-moving piece of equipment which will play a major part in keeping your city clean all year around. In the winter it scoops snow and ice, scatters sand on slick streets. In the spring you'll find the Skyline Loader scooping dirt and leaves from gutter, moving trash, loading sand and gravel for resurfacing roads, even handling garbage. You'll find your new Skyline "90" Loader the best investment your city ever made.

FOR FURTHER INFORMATION WRITE DIRECT

SKYLINE PRODUCTS The SKYLINE CORPORATION
1521 McLEAN BLVD. WICHITA, KANSAS

Surfa-slick SELF-HEATING ASPHALT SMOOTHING IRON
Patent Applied for

Municipalities! This lightweight, rugged, simple, time and money saving smoothing iron will pay for itself in a few days' use.

HOT IN TEN MINUTES HOT ALL DAY LONG

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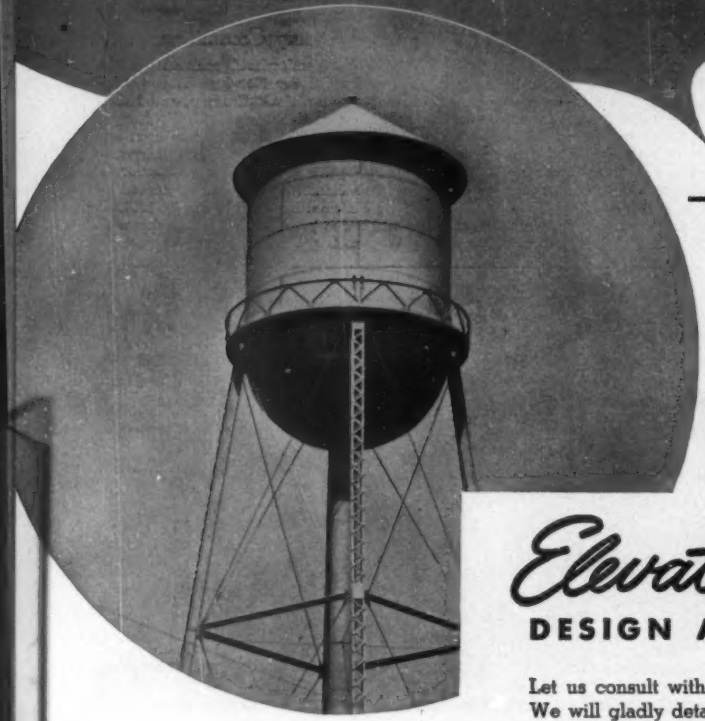
No more building and tending fires on your asphalt jobs!

J. E. WOODS MFG. CO.
1516 First St., San Fernando, Cal.

PITTSBURGH·DES MOINES



—to serve you on your water storage requirements—

OVER 50 YEARS OF EXPERIENCE IN

Elevated Steel Tank

DESIGN AND CONSTRUCTION

Let us consult with you on your elevated storage tank needs. We will gladly detail the features of our many tank types, and aid in selecting the right design and capacity to fit specific conditions. You can depend on P-DM craftsmanship in fabrication and erection—satisfaction is guaranteed! *Write for free 24-page brochure.*

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Soil Pasteurizer

The Tarco flame pasteurizer consists of four main units: the engine, heating drum, torch, and chassis.

The Tarco Flash-Flame soil pasteurizer destroys undesirable soil-borne nematodes, fungi, most weed seeds, and many soil-hibernating pests. The soil in continuous agitated motion is momentarily subjected to temperatures high enough to insure complete pasteurization while preserving and enhancing the life-giving fertility of the organic matter in the soil.

The Tarrant Mfg. Co., East Ave., Saratoga Springs, N. Y., states that its product is a comparatively inexpensive, simple heat-transfer machine. Mounted on 4 bronze-bushed rollers, the large, revolving, heavy gauge heating drum contains angular tumbling irons. Model FP-4-P consists of four main units: engine, heating drum, torch, and chassis.

Drive power is supplied by a 4-cycle, single-cylinder, back-geared, air-cooled gasoline engine which is housed in a weather-tight metal compartment. The Flash-Flame's overall length is 10 feet, 2 inches; height, 4 feet, 3 inches, and overall width 3 feet, 2 inches.

As soil approaches the outlet end, it is exposed momentarily to the fungi-destroying heat from a large kerosene torch-type burner.

New Industrial Diesel Engines

Two new Caterpillar industrial diesel engines, the D337 and D326, are scheduled for production during 1951, according to an announcement by the Caterpillar Tractor Co., Peoria 8, Ill. One new feature of the models is the fuel system with fuel pumps mounted adjacent to the cylinders they serve. This results in standard, identical, short fuel lines for each cylinder.

The six-cylinder D337 is an industrial version of the 5⅛-inch by 6-inch engine developed as a power source for the DW20 and DW21 tractors. Although quite similar in design, the D326 will be offered with a lower horsepower range.

A new arrangement for oil-cooled pistons has been employed on the two machines. The pistons, which have an iron band cast integrally for the upper ring, are cooled by an oil stream sprayed from a nozzle that is solidly attached to the engine block. For the first time on a production engine, Caterpillar is incorporating fine filtration elements which handle the full flow of oil to the engine system.

Domestic General Sales Manager for Dixon

Anthony J. Zino, Jr., has been named domestic general sales manager of the Joseph Dixon Crucible Co., with headquarters in Jersey City 3, N.J.

A. J. Zino, Jr.

Formerly assistant to the president of the Swan-Finch Oil Corp., Mr. Zino has had more than 17 years of extensive experience in the varied phases of sales management with E. F. Houghton & Co., and the Lubri-Zol Corp.

HELLIGE
SWIMMING POOL
TWIN-KIT

FOR ACCURATE pH AND CHLORINE OR BROMINE DETERMINATIONS . . .

The Hellige Twin-Kit is the finest of the small testers on the market. It is equipped with the famous Hellige Glass Color Standards that never fade or change and carry a lifetime guarantee.

Write for Folder No. 800-F

HELLIGE
INCORPORATED
3718 NORTHERN BLVD. LONG ISLAND CITY 1, N.Y.

KILL INSECT PESTS with
IRON AGE
MIST SPRAYERS

Users everywhere praise the performance of Farquhar Iron Age Mist Sprayers on golf courses, parks, playgrounds, swimming pools, tourist courts, picnic grounds, and other places where insect pests are a problem.

Here are the outstanding features of the Farquhar Iron Age Model 125: 22 hp, 4 cylinder Wisconsin engine drives sturdy cast aluminum axial flow fan at 87% efficiency, delivering 6,000 to 11,000 cubic feet of air per minute at 90 to 125 mph. New, efficient spray jets meter *exactly* the right amount of mix, either oil or water, to center of high velocity air stream, insuring complete misting of concentrate. Spray jets can be changed quickly to alter droplet size. Turret rotates 360° for full control of air blast. 125 gallon tanks are available with trailer or skid mounting. Comfortable spring seat for operator.

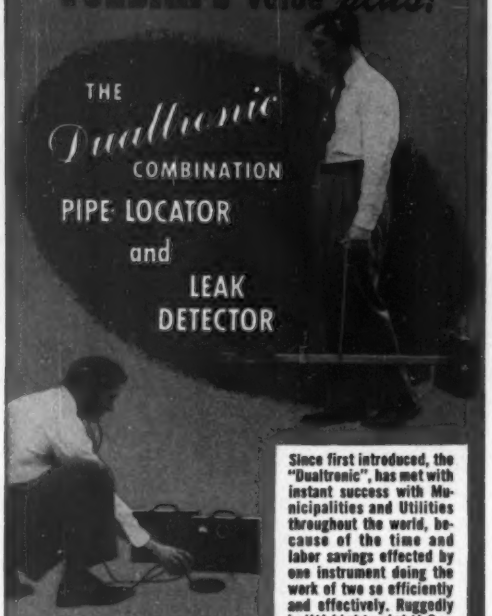
Find out *now* how Farquhar Iron Age Mist Sprayers can make your pest control program *far more effective at less cost.*
Write A. B. FARQUHAR COMPANY, 3536 Duke St., York, Penna.

Farquhar
IRON AGE
YORK, PA.
POTATO AND VEGETABLE PLANTERS · TRANSPLANTERS
SPRAYERS · DUSTERS · POTATO DIGGERS · WEEDERS
MANURE SPREADERS · CONVEYORS · [illegible]

PLANT AND SPRAY THE IRON AGE WAY

GOLDAK'S value plus!

THE *Dualtronic* COMBINATION PIPE LOCATOR and LEAK DETECTOR



Since first introduced, the "Dualtronic", has met with instant success with Municipalities and Utilities throughout the world, because of the time and labor savings effected by one instrument doing the work of two so efficiently and effectively. Ruggedly built! Lightweight! One man operation! The "Dualtronic", is the answer on how to cut costs 50%!

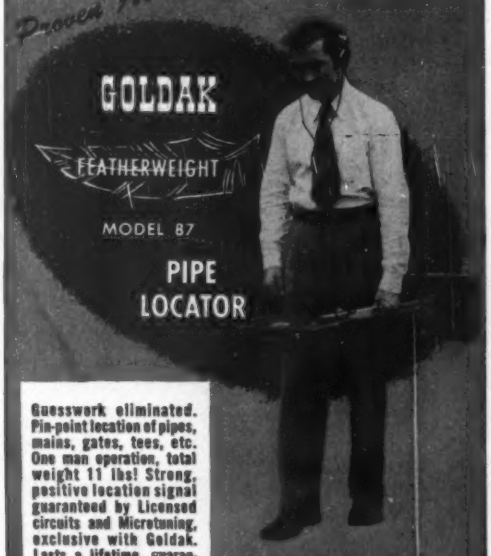
Proven Ability!

GOLDAK

FEATHERWEIGHT

MODEL 87

PIPE LOCATOR



Guesswork eliminated. Pin-point location of pipes, mains, gates, tees, etc. One man operation, total weight 11 lbs! Strong, positive location signal guaranteed by Licensed circuits and Microtuning, exclusive with Goldak. Lasts a lifetime, guaranteed performance. Write for FREE literature!

The GOLDAK PIPE LOCATOR

1544 W. Glenoaks Blvd.
Glendale 1, California

Recommend

FLAMEFOIL CANVAS

with SAFETY... for SAFETY

Many municipal governments recognize the growing importance of having awnings, tents, canopies and other canvas equipment flame resistant. Flamefoil Canvas is manufactured to meet Army, Navy and Federal specifications for flame resistant fabrics. It carries the Underwriters' Laboratories, Inc., and the California Fire Marshal's seals of approval.

PHILADELPHIA TEXTILE FINISHERS, INC.
Norristown, Pa.

FLAMEFOIL CANVAS

for Safety

FLAME . . . WATER . . . WEATHER . . . AND MILDEW RESISTANT

Starting in September—

The Elements of Good Street Construction and Maintenance

A four-issue serial telling:

How streets function
What makes a good subgrade
Where to use concrete, asphalt, soil-cement
How pavements should be maintained
How others make street assessments

The series draws from good practice in large and small cities across the nation.

Subscribe today for additional copies of THE AMERICAN CITY so that your Street Department will have this series for permanent reference.

THE AMERICAN CITY, 470 Fourth Ave., New York 16, N. Y.

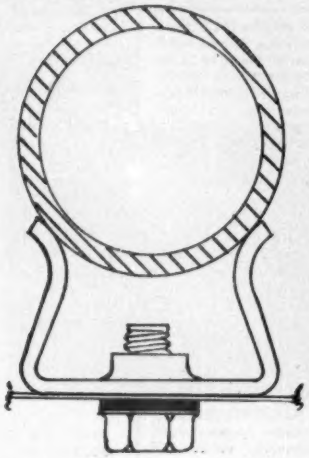
Please bill us for ..... subscriptions to THE AMERICAN CITY at $4.00 per subscription (club rates available on request) starting in September.

Name .....

Position .....

City .....

Sign Bracket Adapted To Small-Diameter Poles



A sign bracket adaptable to small-diameter poles, such as 1½, 1¼, or 2 inches, has been designed by the A. J. Gerrard & Co., 1952 Hawthorne Drive, Melrose Park, Ill.

The firm's No. 2114 bracket has a 5/16-inch 18 extruded tapped hole. The bracket's chief feature is that regardless of the pole diameter, the strap securing the bracket is in contact with at least 67% of the circumference of the pole. The product is furnished in galvanized finish and stainless steel.

The manufacturer reports that the bracket is used in a number of cities and placed on a parking meter post where signs reading "No parking between 7:00 a.m. and 9:00 a.m." and the like are required.

For Trickling Filter Beds Of Sewage-Disposal Plants

Natco Unifilter block underdrains for trickling filter beds of sewage-disposal plants are manufactured by the National Fireproofing Corp., 327 Fifth Ave., Pittsburgh 22, Pa. Bulletin UF-3 describes the firm's products.

The salt-glazed Unifilter blocks are one-piece underdrains made of de-aired, vitrified salt-glazed fire clay. They combine low absorption with great strength. Crossrib reinforcing provided at each end of the Standard blocks add to their ruggedness and durability.

According to the company, the salt-glazed surfaces of the blocks are sanitary and proof against age and corrosion; the egg-shaped run-off channels of the blocks are designed to provide for maximum flow, capacity, and aeration, and the three long top slots, in combination with the area of the ducts themselves, result in rapid, uniform, and widespread ventilation of the entire filter bed.

Vitrified clay Unifilter blocks are designed in one piece to provide both aeration and drainage in a single unit or in a single course of block. They embrace all filter blocks required to lay a single course trickling filter floor system. Made from high-grade fire clay, de-aired and molded into form, they are hard-burned into a flint-like rock by over 2,000 degrees of heat and salt glazed to provide sanitary, non-absorbent surfaces.

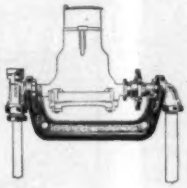
Engineering Consultants

The newly formed firm of associated engineeering consultants, Cotton, Pierce, Streander, Inc., at 683 Atlantic Ave., Boston 11, Mass., specializes in civil, sanitary, structural, mechanical, electrical engineering reports, studies, designs, and supervision, as well as water supply, sewage treatment, water conditioning, power plants, city planning, and industrial plants. The New York office is at 132 Nassau St., New York 7, N. Y. Other offices are located in Philadelphia, Washington, and Gowanda, N. Y.

The company is an association of consulting engineers strategically located in the United States, the West Indies, Canada, and South America, serving Federal Departments and Bureaus, states and municipalities, financial institutions, process industry, and utilities.

a Ford Yoke

for EVERY SETTING



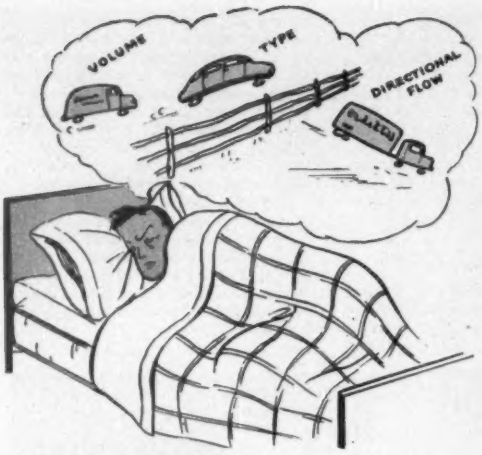
Ford Yokes are made in styles to meet every meter setting condition—indoors or out. Regardless of location, the Ford Yoke makes settings easier, removes pipe strains, saves labor and keeps meter connections permanently aligned for fast changes. Roughly, Ford Yokes are made in three styles:

1. Riser Yokes, to use where the meter must be raised above the service line.
2. Angle Yokes, to satisfy a vertical inlet, horizontal outlet condition.
3. Straight Line Yokes, for setting meters in a horizontal line without raising the level of the meter.

Every Ford Yoke is permanently satisfactory. Send for full information.

FOR BETTER WATER SERVICES — FORD

THE FORD METER BOX COMPANY, INC. Wabash, Indiana

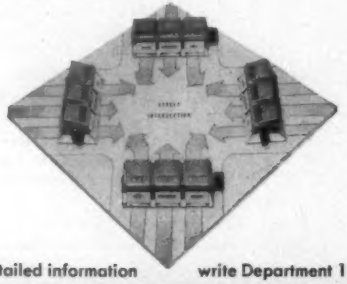


Counting Traffic can be nerve racking!

. . . but it's a cinch when using the newly designed Traffic Control DENOMINATOR.

In order to establish regulations to control the flow of traffic at street intersections, highways, bridges, tunnels, terminals and airports, officials of Traffic Bureaus and Planning Divisions know that "Keeping Count" accurately is a basic factor in their day-to-day studies of traffic operations. These important analytical studies can be made quickly, accurately and economically with the "Traffic Control" *Denominator*.

Whether a single unit Hand Tally Denominator or tabulators made up of multiple registers to meet specific requirements, this flexible, modern and efficient device can be of invaluable assistance in computing many traffic statistics.



For detailed information write Department 1-TC

THE *Denominator Company*, INC.
261 BROADWAY, NEW YORK 7, N. Y.
Manufacturers of Tabulating Machines for over 35 years

Self-Propelled

Saw before Breaking . . . and get better patches, reduced breaking tool time and lower cost patching.

Saws concrete or asphalt . . . faster and at less cost! Self-Propelled feature means substantially longer blade life and fewer manhours on the job. For maximum sawing efficiency use the Self-Propelled CONCUT Saw and CONCUT Blue Blades.

ONLY CONCUT GIVES YOU THESE FEATURES
Self-Propelled . . . virtually operates itself.
Finger-Tip Control . . controls, valves and gauges on dash panel.
Lever Lock . . quickly raises and lowers blade.

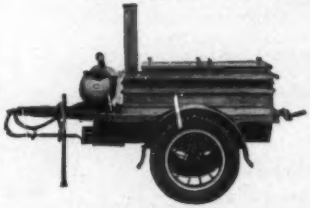
WRITE FOR BULLETIN 12

The Greatest Name in Concrete Saws

CONCUT
CONCRETE SAW

CONCUT CONCRETE SAWING EQUIPMENT, INC.
200 Union National Bank Bldg., Pasadena 1, Calif.

Connery's Style W Heating Kettle Made in 75, 110, 165 and 210 Gallons.



For speedy heating of Tar and Asphalt for road, street and airport runway repairs use Connery's style W kettle, the most efficient heating kettle of its kind.

Write for Bulletin 87.

CONNERY CONSTRUCTION CO.
4000 N. Second Street Philadelphia 40, Pa.

LEADITE

FOR JOINTING CAST-IRON WATER MAINS

Melted and Poured No Large Bell-holes to Dig Saves at Least 75%

Leadite is shipped in powder form, packed in sacks of 100 lbs. net each. Leadite tested and used for over 50 years ● Leadite joints improve with age.

Be sure it is Leadite and accept no imitations

THE LEADITE COMPANY
Girard Trust Co. Bldg., Philadelphia 2, Pa.

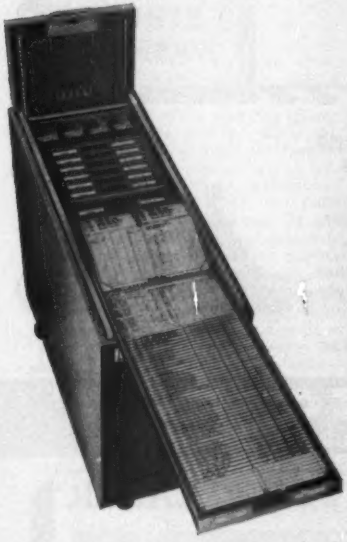
Field Service Manager Of Four Wheel Drive

Charles J. Glocke, director of the Four Wheel Drive Auto Company's Service Division, Clintonville, Wis., announces the appointment of Bruce V. Walch as manager of the Field Service Department. Mr. Walch has been manager of the FWD Parts Sales Department.

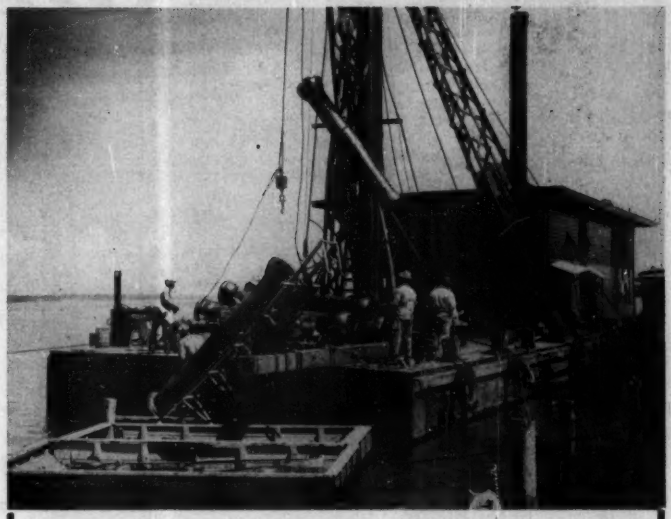
B. V. Walch

As field service manager, he will direct the activities of the concern's service organization. With the company since 1927, with which he received training in various departments, he was assigned to the Parts Department in 1935, and was named manager of the Parts Sales Department in 1946.

Visible Records Cabinet On Wheels



Inventory, cost, personnel, ledger, and other records can be housed in a new Mobile Kardex that can be rolled right to the person needing information. "Full-Vision" reference, quick "Pick-Up" of facts, and "Finger-Tip" management steering through signalled visible records are distinctive features. With equal ease the cabinet, on hard rubber casters, is transferred to vaults for overnight storage. Bulletin KD 619, describing Remington Rand's Mobile Kardex, together with its many outstanding features and advantages, will be sent, on request by writing Remington Rand Inc., 315 Fourth Ave., New York 10, N. Y.



16" Water Pipe Line under John's Pass, Fla., being installed in 35 feet of water

MEMBER

BOYCE COMPANY

Submerged Pipe Lines All Over the World

Phone 3-2530 CLEARWATER, FLA.

Time, Money SAVED Because REFINITE is NEIGHBORLY in the...

Cities & Towns in United States!

Problems in WATER TREATMENT are rightly solved when you call in the RIGHT ANSWER people. Refinite's Sales & Service Staff blankets the nation, and there is a representative close enough to give you neighborly service. Merely get in touch with Norm Tucker at Refinite in Omaha. He will have the Refinite man nearest you get the necessary details concerning your problem, and forward to the RIGHT ANSWER Service in Omaha . . . for immediate attention.

Today . . . ask the girl on the switchboard to get Norm Tucker of RIGHT ANSWER Service . . . Ollchard 3000 . . . Omaha. Or, write. Address: Right Answer Service, Refinite Corp., P. O. Box 1312, Omaha, Nebraska.

Refinite

WATER REFINING EQUIPMENT
OMAHA, NEBRASKA

HYDRAUGER*

REG. U. S. PAT. OFF.

OPEN HOLE

Get Booklet . . . shows the incredible savings Hydrauger makes in both time and cost.

BORES	2" through 24"
DISTANCE	up to 225 feet or more, per setting, depending on earth formation being bored.

HYDRAUGER CORP. Ltd.
681 Market Street
San Francisco, California

*Earth Boring Tool

HY-258

A "New" Foot-Operated Hydrant

There are any number of places where a hydrant of this type is highly desirable.

Step on pedal, the water flows. The instant the foot is taken off, the water stops. The hands are free. Water is not wasted.

Like all MURDOCK Hydrants and Outdoor Drinking Fountains this fixture is NON-FREEZING and will give YEARS of practically trouble-free service.

The Murdock Mfg. & Sup. Co.
Cincinnati 2, Ohio

MADE FOR ANY DEPTH OF BURY

MURDOCK

OUTDOOR DRINKING FOUNTAINS

HYDRANTS

STREET WASHERS

UNITED SEALS

FOR ALL MUNICIPAL AND WATER WORKS USES

We can furnish you any type of lead or wire seals for every need, including water meters, electric meters, parking meters, boxes, drums, trunk cars, fire extinguishers, cash boxes, governors and carburetors.

All size leads. Wire may be had in copper, galvanized and steel, either cut to standard lengths or in spools or coils, single crimped 2, 3 & 4 ply in most gauges.

We also carry a complete line of seal presses. Will letter to order with no additional charge.

Cast iron stop cock seals for sealing in position any size or type pipe stop cocks including lock-wing stops.

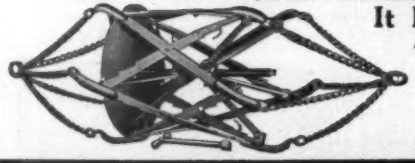
Same type seals also manufactured for all type and size pipe unions.

THE UNITED SEAL COMPANY

450 S. PEARL ST. COLUMBUS 15, OHIO

EXPANDING ROOT CUTTER & SEWER CLEANER

Open and in action removing roots and caked sediment like this.



It Fits in on Every Sewer Cleaning Job

Adjusted in 30 seconds to fit any sewer from 8 to 30 inches.

Will clean the entire sewer wall, top, and sides as well as the bottom, cutting and removing the roots and caked sediment, putting the sewer system in almost 100% clean condition.

Write for our new catalog on complete sewer cleaning equipment.

EXPANDING SEWER MACHINE COMPANY

108 East Walnut St. **Nappanee, Ind.**

Cites Advantages of Manual Parking Meters for New York

To the Editor of THE AMERICAN CITY:

We are glad to see that the City of New York has finally taken action on parking meters, but we were a bit disappointed that they are not making a trial of manually operated parking meters as well as the automatic type.

An unquestionable advantage of a manually operated meter is that it does not have to be wound by a city employee. A real honest-to-goodness fact regarding the cost of operating automatic parking meters is that they must be wound by a city employee. Regardless of whether this operation is done when collections are being made or by any other means, it must be done.

Winding one meter and passing on to the next, at one minute each, and doing the job twice a week, we find that one man on a full 40-hour week can take care of 1,200 meters. At $1.50 per hour, the winding of 1,200 meters costs the city $60 per week or $3,120 per year.

Keeping our figures conservative, let us say the 1,500 meters the City of New York plans to install will cost only $3,120 a year to wind. When the city installs the estimated 30,000 parking meters that it intends to use, the winding operation alone would be $62,400 each year. This expenditure is eliminated when manually operated meters are used, as the motorist winds the clock each time he turns the handle.

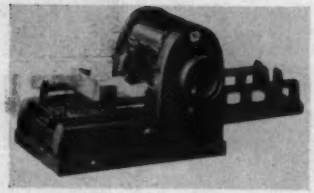
The reality and practical force of this advantage are pointed by the familiar vending machine. The only automatic vending machines we know of are operated electrically—a means which is impossible in parking meters due to the prohibitive cost of installation. About 95% of the vending machines in use today are manually operated. The customer inserts his coin and pulls a lever or twists a knob to receive the goods he has purchased. The reason manually operated machines are generally used is the maintenance. The operator of the vending machine must keep his maintenance to the minimum in order to run a chain of vending machines efficiently.

We hope New York City will give consideration to manual parking meters in future installations.

ELMER LUEBBERT, *Manager*
Mi-Co Meter Division of
The Michaels Art Bronze Co., Inc.
231 Court St., Covington, Ky.

Table Mimeograph Has Built-in Electric Drive

The A. B. Dick Co., 5700 W. Touhy, Chicago 31, Ill., manufacturer of mimeograph machines and supplies and lithograph supplies, announces a new high-speed, heavy-duty table model mimeograph with built-in electric drive. This machine has a feed table capacity of 500 sheets of substance 20 paper, and is almost entirely automatic in operation. Variable speeds in ranges from 60 to 110 and 110 to 180 copies per minute guarantee the high speed production required in today's business offices.



High speed production is achieved by this new mimeograph which has variable speeds from 60 to 110 and from 110 to 180 copies per minute.

Other factors to increase the overall speed of this mimeograph are: quick loading feed table, copy stacker and receiving tray, finger-tip controls for vertical, lateral and angular copy position adjustments, and the new quick drying inks recommended for use with this machine.

Also made by A. B. Dick, these new inks dry almost immediately upon contact with the paper and permit immediate handling of copies.

A Jaeger never races to prime

Pump longer because they pull stronger, at easy speeds

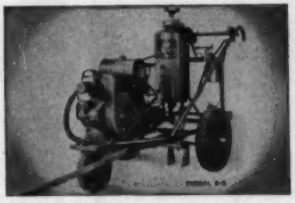
Dewatering 1500' of 8' x 14' deep sewer trench at a river crossing, this 4" Jaeger pump handled 40,000 gph at average speed of only 1200 rpm (10% to 15% lower speed than other pumps), and reprimed quickly, as needed, at 1400 rpm (compared with 1800 to 2000 rpm required to prime ordinary pumps). This is typical performance. Jaeger's larger shells and impellers, double priming action and use of largest engines applicable mean high efficiency, fuel economy, long life — in 1½" to 10" pumps.

See your Jaeger distributor or send for Catalog P-10

THE JAEGER MACHINE COMPANY 505 Dublin Avenue, Columbus 16, Ohio

COMPRESSORS • MIXERS • HOISTS • TOWERS • PAVING MACHINERY

This is the Kelly-Creswell Model that will SOLVE your Municipal Zone-Marking Problems.



Uniform Cross-Distribution
Clean-Cut, Attractive Lines
Pressure Cleaning Equipment Air-Actuated Traction.
More Highway Zone-Marking Material is applied thru K-C Equipment than thru any other make. ***There must be a reason.***

KELLY-CRESWELL CO., Xenia, Ohio

Mark-Rite
LINE MARKER

CUTS LINE MARKING COSTS UP TO 75%

PAYS FOR ITSELF QUICKLY... MANY TIMES ON FIRST JOB!

Purchasers of Mark-Rite Equipment Include:

Winslow, Arizona
San Diego, California
Miami Shores, Florida
Springfield, Illinois
Columbia City, Indiana
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Boston, Massachusetts
Springfield, Minnesota
Greenville, Mississippi
Bozeman, Montana
Las Vegas, Nevada
Cincinnati, Ohio
The Dalles, Oregon
Knoxville, Tennessee
Fort Worth, Texas
Salt Lake City, Utah

- Paints traffic, guide lines fast
- One man operation
- Requires no air pressure
- Easy to clean
- On or off job in five minutes
- Thousands used throughout world!

FOR DETAILED INFORMATION WRITE DEPT. A51

UNIVERSAL MFG. & SALES COMPANY
9716 S. SANTA FE AVENUE • SOUTH GATE, CALIF.

MARK RIGHT . . . WITH A MARK-RITE!

AGENTS:

Good, exclusive territories are open for fast-selling "FERRO" signs. Every city needs these highly visible porcelain enamel signs.

"FERRO" signs are nationally known, tested, *proved*. Finest quality steel, deeply embossed, finished in brilliant, permanent porcelain enamel.

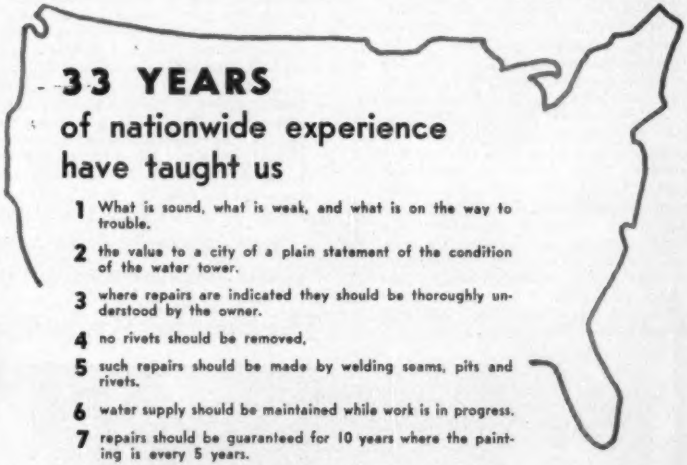
If you have allied lines and a following, write today for further information.

FERRO ENAMELING CO.
1100—57th Avenue Oakland 3, Calif.

The Silent Watchman

REPRESENTATIVES IN THE FOLLOWING CITIES:

SALT LAKE CITY, UTAH	Box No. 1202
DETROIT, MICH.	Box No. 1423
RALEIGH, N. C.	Box No. 251
SYRACUSE, N. Y.	Box No. 681
BUTTE, MONTANA	Box No. 383
GREENVILLE, S. C.	Box No. 1074
TAMPA, FLORIDA	Box No. 1642
RICHMOND, VA.	Box No. 886
NEWARK, OHIO	Box No. 623
FARGO, N. D.	Box No. 1472
COLUMBIA, S. C.	Box No. 472
DALLAS, TEXAS	Box No. 1881
DENVER, COLO.	Box No. 2037
WAUSAU, WISCONSIN	Box No. 682
SAN FRANCISCO, CAL.	Box No. 1445
COLUMBIA, MO.	Box No. 522
SPOKANE, WASH.	Box No. 906
MACON, GEORGIA	Box No. 402
PROVIDENCE, R. I.	Box No. 202



33 YEARS
of nationwide experience have taught us

1. What is sound, what is weak, and what is on the way to trouble.
2. the value to a city of a plain statement of the condition of the water tower.
3. where repairs are indicated they should be thoroughly understood by the owner.
4. no rivets should be removed.
5. such repairs should be made by welding seams, pits and rivets.
6. water supply should be maintained while work is in progress.
7. repairs should be guaranteed for 10 years where the painting is every 5 years.
8. painting on fully reconditioned towers should be guaranteed for 5 years.
9. inspections should be yearly at no cost to the municipality.
10. It's better to write us today.

DIXIE TANK & BRIDGE CO.
3523 Lamar Ave. Memphis 1, Tenn.
P. O. Box 14

New Truck Crane Has Net Weight of 2,200 Pounds

In action—New truck crane lifts pipe onto freight car.

A new truck crane has been designed for and placed on the market by The Badger Machine Co. Known as the Hopto "TM," this crane uses either a hydraulically operated power take off or an independent motor for its operation.

Its hoist, boom, and swing are completely hydraulic and can be mounted on a standard automotive truck of 1½-ton capacity or larger. It has a net weight of 2,200 pounds; swing of 180 degrees; capacity of 1,500 pounds on a 15-foot radius, and a lifting height of 23 feet maximum. It was designed for operation without the use of drums, clutches, and brakes.

Further information may be obtained from Badger Machine Co., Dept. 60, Winona, Minn.

Improved Portable Gasoline Hammers

Introduction of improved models of Barco portable gasoline hammers, featuring new ignition, greater portability, and increased operating convenience, is announced by the Barco Mfg. Co., Dept. H-76, 1801 W. Winnemac Ave., Chicago 40, Ill. The new hammers are distinguished by a simplified arrangement of parts made possible by use of a new and highly compact ignition coil-vibrator-condenser assembly which is now located in the right hammer handle. They are used extensively in the construction field, and by municipalities, utilities, and many industries for pavement breaking, rock drilling, spading, and tamping.

The new coil-vibrator-condenser assembly weighs only a few ounces. It replaces a coil several times heavier and larger which formerly was a separate part connected to the hammer by heavy cable. The assembly is of sealed type construction that does not permit field adjustment or unauthorized tampering, and the coil, vibrator, and condenser are easily replaceable as units.

The hammer requires no auxiliary equipment or power source other than the ignition battery, making it completely portable and suitable for use at any location with a single operator. Standard models include Model J-2, weighing 72 pounds, and heavy-duty Model H-6B, 89 pounds. Both deliver up to 1,550 strokes per minute and differ only in size and weight.

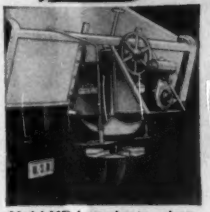
The firm also offers kits of conversion parts for incorporating these latest advanced features into existing hammers.

Improved portable gasoline hammer for pavement breaking, rock drilling, spading, frost breaking, asphalt cutting, and backfill tamping.

Now ... is the time to plan for next winter's ice control

Baughman builds the ONLY COMPLETE LINE!

Model ASK-3-SC spreader body sprays cinders, sand, chips, salt, chat, chloride, gravel, etc. . . . from 8 to 40 ft. Also sows seeds, fertilizers and lime in parks and along highways. Write for Bulletin A-349.



Model MD-1 attaches to endgate of dump trucks. Self-powered, it's an effective low-cost spreader of cinders, salt, sand, chloride, chips and chat. Bulletin A-357 describes it.

Model SC-51 pull type spreader distributes in a full circle and under wheels of truck. Traction powered. Spreads sand, salt, cinders, chloride, etc. forward or backward. Low price. Described in Bulletin A-355.

Model 51-SP "Streamliner" sidewalk spreader . . . perfect around public buildings, rail & bus stations, airports, parks, walks, etc. Spreads sand, salt and calcium chloride. Ask for Bulletin A-352.

Model 51-SM "Salt Miser" accurately meters salt or chloride without crushing or powdering. Perfect control from 8 to 24 ft.; spreads material accurately and economically. Bulletin A-350 has complete details.

Model 51 Cinder Cracker for dump bodies spreads cinders, sand and up to ½" rock. One-man operation — easily controlled for spot spreading. Crushes any cinders except the hardest clinkers. Hydraulic motor-driven and chain-driven models. Complete information is given in Bulletin A-354.

Write for Information on Our Complete Line

BAUGHMAN

BAUGHMAN MANUFACTURING CO., Inc.
671 Shipman Road Jerseyville, Ill.

"There is a Baughman Distributor Near You"

SPARLING
Main-Line Meters

IF accuracy in Main-Line Metering means anything to you—

IF ease of installation and maintenance are considerations—

IF negligible pressure loss through the meter is desirable—

If cost is a factor—

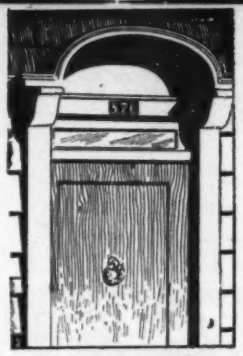
YOU NEED *SPARLING* METERS

Bulletin 311 comes upon request

SPARLING METER COMPANY

Los Angeles 54 ..... Box 3277 Terminal Annex
Chicago 8 ..... 1500 South Western Ave.
Cincinnati 2 ..... 622 Broadway
New York 17 ..... 101 Park Avenue
Boston 8 ..... 6 Beacon Street
Seattle 1 ..... 1932 First Avenue
Dallas 1 ..... 726 Reserve Loan Life Bldg.
Atlanta 3 ..... 66 Luckie St. N.W.

PREMAX



Proper House Numbering

Every city should have a well-planned house numbering system as a means of identifying one home from another as well as to assure proper mail delivery. Premax has supplied numbers for hundreds of municipalities and can aid you. Write for details of Modern House Numbering.

PREMAX PRODUCTS
DIVISION CHISHOLM-RYDER CO., INC.
5146 Highland Ave., Niagara Falls, N.Y.

W. J. Weed Vice-President

William J. Weed, manager of sales, for the Niagara Alkali Co., 60 E. 42nd St., New York 17, N. Y., was elected vice-president of the firm, with which he has been associated since 1913. He has been a director of the company since 1941.

W. J. Weed

Mr. Weed, is a past trustee of the Chemists Club of New York, and a member of the New York Board of Trade, Synthetic Organic Chemical Manufacturers Association, and the Sales Executives Club of New York.

"Dog Tag" Duplicates Stored in Mountains

Identification tags similar to the famed "dog tags" supplied to Army and Air Force personnel are now available to employees of the nation's safety-conscious utilities, civilian, and war-production plants, as well as to school students.

The Identification Division of the Bottlescope Mfg. Co., Lansdowne 1, Pa., offers a plan whereby the entire personnel of a plant may be "tagged" at minimum cost. A feature of the plan is the storage of duplicate copies of your employees' names and addresses in the mountain section of Pennsylvania. The concern's division stores a duplicate of every name and address in the vaults of a mountain facility also used by banks, insurance companies, and corporations for safekeeping of deeds, titles, and other essential records.

The company is bonded against possibility of your list of employees ever being revealed to or used by outside sources.

"Dog Tags"—available for employee identification in case of atomic attack.

ONAN
Emergency Electric Plants
for
Civil Defense

No matter what happens to central station power during a bombing attack, electricity for essential defense needs is always available with Onan Electric Plants. Onan units, mounted on truck or trailer, or carried in the trunk of a car, can be rushed to any point where power and light are needed. Sturdy and dependable, Onan Electric Plants are an important link in a city's defense against disasters of any kind.

Power & Light for Every Need

Portable, Mobile, or Stationary
400 to 35,000 watts. A.C. or D.C. models.

Write for folder

Onan PRODUCTS
D. W. ONAN & SONS INC.
7642 UNIVERSITY AVE., MINNEAPOLIS, MINN.

Elizabeth, N. J. Uses The NETCO Catch Basin Cleaner . . .

And has found Netco a necessity for fast, cheap cleaning of catch basins throughout the city.

Commissioner C. A. Burke; John L. Sullivan, Superintendent of Streets; and James D. Spiritico, the operator, all agree that it is a great machine both in performance and as a labor and money saver.

The Netco with pneumatic controls is simple to operate and averages 20 to 30 catch basins a day.

NETCO—THE MODERN CHEAP WAY OF CLEANING CATCH BASINS

Fill in and mail this coupon TODAY for complete information on NETCO CATCH BASIN CLEANERS →

NAME .....

TITLE .....

ADDRESS .....

.....

NETCO DIVISION
CLARK-WILCOX COMPANY
118 Western Avenue
Boston 34, Massachusetts

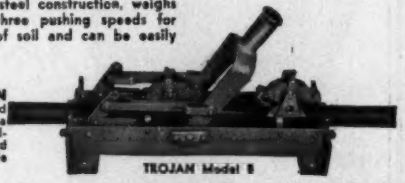
The TROJAN pipe puller and pusher — Cuts Costs! Saves Time!
• Simplifies installation or renewing water and gas service lines under pavement

MODEL A—for ½" to 1" pipe. One man can lift in and out of trench and install average service. Weighs only 65 lbs. Special design and all-steel construction make possible 15 tons of pushing pressure.

TROJAN Model A

DOUBLE ACTION AND CONTINUOUS OPERATION
No re-setting of grip required. Push pipe is made of double extra heavy steel pipe with inside couplings for butt joint. Pilots and Special Couplings will handle variety of jobs.

MODEL B—will push up to 2" pipe without additional dogs, clamps or wedges. Heavy duty, all-steel construction, weighs 140 lbs. Has three pushing speeds for different types of soil and can be easily reversed.



TROJAN Model B

The TROJAN Manufacturing Co., 1112 Race Drive, Troy, Ohio
41 GREENWAY—HAMDEN, CONN. BOX 465—MEMPHIS, TENN.

BUILDERS

WATER and SEWAGE WORKS EQUIPMENT

— for metering and controlling flow of liquids, air, dry materials — also for chlorinating water and sewage. For Bulletins and complete information, address Builders-Providence, Inc. (Division of Builders Iron Foundry) 358 Harris Ave., Providence 1, R. I.

BUILDERS-PROVIDENCE

CUT *YOUR* SWEEPING COSTS *75%*
Wilshire POWER SWEEPER

Picks up everything from cigarette butts to pop bottles in one easy operation! Write today for dealer nearest you and **FREE on-Your-Job DEMONSTRATION.**

For dealer nearest you, write Dept C-7

Wilshire
POWER SWEEPER CO
526 W. Chevy Chase Drive
Glendale 4, Calif.

Sweeping the Country since 1940!

Bigger and Better than Ever

Toronto, Canada
to install
new 900 ton
NICHOLS
Monohearth
Mechanically Stoked
Refuse Incinerator

Will be the world's largest circular, mechanically stoked refuse incinerator plant.

NICHOLS ENGINEERING & RESEARCH CORP.
70 PINE ST., NEW YORK 5, N. Y.
40 S. LOS ROBLES AVE., PASADENA 1, CALIF.
1920 N. MERIDIAN ST., INDIANAPOLIS 2, IND.
1477 SHERBROOKE ST. W., MONTREAL 25, CANADA

Heart of a NICHOLS
Refuse Incinerator Plant
is the MONOHEARTH

- Mechanically Stoked
- Efficient
- Economical

WORTHINGTON-GAMON

LIQUID METERS
All Sizes All Types

WORTHINGTON-GAMON METER DIVISION
Worthington Pump and Machinery Corp.
296 South Street Newark 5, New Jersey

PLAYGROUND EQUIPMENT
AMERICA'S FINEST
BUILT by BURKE

Designed expressly for safe healthy play. Approved by park and playground officials throughout the U. S. Strongly constructed with durable materials; easy, low cost maintenance.
Burke engineers will gladly help you plan your playground.

Invest in child happiness with BURKE-BUILT EQUIPMENT—Climbing structures, swings, slides, see-saws, merry-go-rounds, turning bars, horizontal ladders, etc.
For complete catalog WRITE DEPT. K

THE J. E. BURKE CO., Fond du Lac, Wis.

PFT ROTARY DISTRIBUTORS

Uniform Distribution

Hundreds of P.F.T. Rotary Distributors are in operation coast to coast. P.F.T. patented spreader jets give uniform distribution of sewage over the entire filter bed area assuring fullest utilization of all filter bed media. Consult P.F.T. engineers for the solution to your filter distribution problems.

P.F.T. PACIFIC FLUSH TANK CO.
Waste Treatment Equipment Exclusively Since 1893
4241 RAVENSWOOD AVE. CHICAGO 13, ILLINOIS

Water Meter Repairs

How a well-planned meter shop should look.

If the water meter is not repaired for many years, The Neptune Meter Co., 50 W. 50th St., New York, N. Y., points out that some parts will naturally show wear. When this happens with the disc type meter, the water utility loses. A neglected disc type meter always runs slow, never fast. Long before a neglected meter turns over for the last time and stops completely, Neptune studies show, it loses the sensitivity to low flows—particularly flows of less than one gallon per minute. Yet, 25% of the water actually flows through the meter at one gallon or less per minute. Most water leaks fall into this low-flow class, and if the meter doesn't register them, there's no incentive for the householder to call the plumber.

To collect revenue due the water works, to prevent water waste, and to spread the costs of the water system in an equitable manner, a planned program of meter repair and testing is a "must" for all waterworks, large or small. Here are some case histories in this company's files:

A city in Kansas: In 1937, 57% of the water pumped was "unaccounted for." As part of the investigation, the meters were inspected. Some were 10 to 15% slow, and many were completely "dead." A meter repair program was installed, and detailed records kept. Today, only about 18% of the pumpage is unaccounted for, and the "lost" water that has been saved amounts to $4,000 in five months.

City in North Carolina: Prior to adoption of a meter repair and testing program, the city received $69,457.75 in water revenues and pumped 227,114,000 gallons. During the first year of the repair program, the amount of water pumped decreased 2.2%, while the revenue increased $2,539.99!

How often a meter should be repaired and tested depends largely on local water conditions. Water containing abrasive or corrosive elements, or water that causes rapid build-up of deposits, will naturally necessitate more frequent testing. A five-year schedule is a good one to start with for small meters; this can be lengthened or shortened as experience dictates. Large industrial or main line meters should be tested every few months.

The Neptune Meter Co. has published two booklets telling how meter repairs and testing can be planned. A copy of either will be sent on request. One applies to the Trident split case and the other to frost-proof meters.

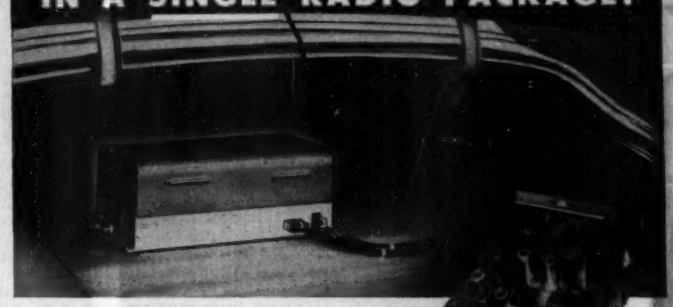
Truck Conservation Program

A nation-wide truck conservation program beginning July 1st, has been announced by W. C. Schumacher, general manager of the Motor Truck Division, International Harvester Co., 180 N. Michigan Ave., Chicago 1, Ill. Participants will include the company's motor truck retail branches and dealers who comprise the largest truck service organization in the world.

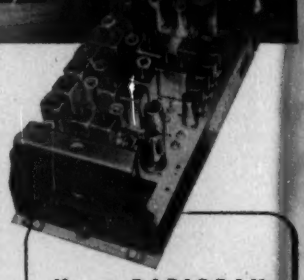
Mr. Schumacher reports that free-of-charge inspection service for the nearly 1,000,000 International trucks on the nation's highways will be offered for a 90-day period by the organization's 5,000 sales and service outlets.

Direct benefits of the Truck Saving Plant to truck operators he listed as: (1) better truck performance over a longer truck life; (2) reduced maintenance and down time costs; (3) protection of truck value, and (4) minimizing delays in obtaining new parts. A special service manual has been developed by International Harvester's Motor truck Division to guide servicemen in the program.

HERE'S TOP PERFORMANCE IN A SINGLE RADIO PACKAGE!



KAAR RADIOPAK



The four outstanding features for which Kaar equipment has long been noted have now been combined into a single mobile radiotelephone package that is far ahead in performance . . . yet competitive in price!

The Kaar RADIOPAK features ruggedness, simplicity of design, lowest battery drain, exceptional voice quality *plus* greater than ever stability and sensitivity, engineered selectivity that exceeds the standards set by FCC regulation — all in a single unit transmitter-receiver that is completely integrated for simplicity of installation, maintenance, and operation.

RADIOPAK is ideal for police, taxi, fire equipment, and trucking installations and is particularly suited for three-wheeled motorcycle use. ***Don't be content with an ordinary radiotelephone system—specify RADIOPAK!***

Kaar RADIOPAK "In a nutshell":

FREQUENCY RANGE: 152-174 mc

POWER OUTPUT: 10-12 watts

BATTERY DRAIN: Standby 6½ amps; Transmitting, 15 amps

DIMENSIONS & WEIGHT: 6¾" high, 8" wide, 18⅛" long; 24 lbs.

STABILITY: Better than .005% for a 50° C temperature change with standard Type E crystals

SPURIOUS EMISSION: Down at least 70 db

SPURIOUS RESPONSE: Down over 85 db

SELECTIVITY: 100 db down at 60 kc off resonance

SENSITIVITY: 20 db quieting on less than ½ microvolt of signal

AUDIO RESPONSE: ±3 db from 180 to 3000 cycles

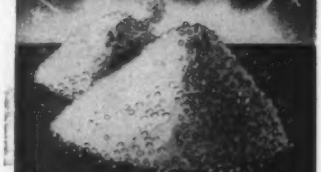
KAAR ENGINEERING CO. • Palo Alto, California

Let's reflect a moment...

SAVE TIME & MONEY USING THE

Cataphote

BEADED SIGN KIT



Reflectorize and give extra life to your signs at ½ the usual cost. A brand new, extra low cost, easy-to-apply method of reflectorizing your signs. No special equipment, no special training. Virtually foolproof. Now you can reflectorize your own signs in your own shop. Write for full info and prices.

Cataphote

Corporation

TOLEDO 10, OHIO

Rush FREE descriptive pamphlet and full price list on CATAPHOTE Beaded Sign Kit and its low cost advantages to me:

Name_____

Title_____

City_____

State_____

MFRS. AGENTS INQUIRIES INVITED!

Byerlyte Officers

D. N. Myers, president of the Byerlyte Corp., 2300 W. 3rd St., Cleveland 13, Ohio, has announced the election of Winston Hussey as vice-president, and F. K. Egermeyer as treasurer.

D. N. Myers

Mr. Hussey joined the company as a technical director in 1944, in charge of research and development on products for the paving paint and rubber industries.

Winston Hussey F. K. Egermeyer

Mr. Egermeyer became associated with the concern in 1933 as a salesman. He was named sales manager in 1941 and since 1943 has been assistant treasurer.

The Byerlyte Corp. is the world's first refiner of asphalt, patents having been granted to F. X. Byerly in 1894 by the United States and Canadian Governments. The company is now the largest exclusive asphalt refiner in this country.

Mr. Myers entered the concern's employ as a testing engineer in 1922, and has spent his entire business career with Byerlyte, which manufactures industrial and paving asphalt, and operates asphalt refineries at Heath, Ohio, and Flushing, N. Y., as well as in Cleveland.

He has 16 patents granted for basic methods in the refining of asphalt.

With Municipal Engineers

John S. Telfair, Jr., has joined the municipal consultants' firm of Smith and Gillespie, engineers, of Jacksonville, Fla. For the last 12 years he had been with the U. S. Engineer Department and with the Florida State Board of Health.

New Iron and Steel Firm Sends Pipe to Puerto Rico

The Lone Star Steel Co., P. O. Box 8087, Dallas, Texas, a relative newcomer in the iron and steel business of the Southwest, has announced its first foreign shipment of cast iron pressure pipe. The pipe was sold to the Puerto Rico Aqueduct Authority, and the value of the shipment was in excess of $100,000.

Twenty-four rail cars were required.

Now—more than ever!

smith

the *money-saving*

COMPRESSOR

smith MODEL 105-P

Lower first cost! Lower upkeep!

In high-cost times, look to the Smith for compressor savings! Delivers 105 cu. ft. per minute—combines heavy duty with light weight; easily portable. Powered with the Chrysler Ind. 15 Industrial engine — 6 cyl., 4" bore, 5" stroke, 377 cu. in., 3" crankshaft, 7 main bearings, sodium cooled valves and Stellite valve seats for heavy duty, long life. Compressor valves—stainless steel disc type with Manganese Bronze seats. Improved type pilot valve and simplified control . . . *Write for literature and prices.*

ALSO the new SMITH 70-P AIR COMPRESSOR

Gordon Smith & Co.

Incorporated

425 College Street

BOWLING GREEN, KY.

This catch-basin cleaner can be mounted on any short wheel base truck having at least 8 feet in back of the cab.

Catch-Basin Cleaner Has Pneumatic Controls

The Netco catch-basin cleaner with pneumatic controls can be mounted on any short wheel-base truck having at least 8 feet in back of the cab. The unit may be purchased separately and mounted on your own chassis.

According to the manufacturer, the Netco Division, Clark-Wilcox Co., 118 Western Ave., Boston 34, Mass. The Netco unit can be removed from truck and chassis in 30 minutes, permitting the use of the truck for other purposes when not cleaning catch basins, its bucket closes pneumatically, assuring positive and maximum digging efficiency, and it will operate through as small an opening as 16 inches with no lost capacity.

The bucket is made in two sizes, 1¼ cubic feet or 1½ cubic feet, as required. It is lowered and raised by one cable. Only one hose is required to close it, and it is opened by a powerful spring action. The Netco has a hoisting capacity of up to 1,500 pounds.

The bucket easily removes sticks, stones, bottles, wire, and similar debris from all catch basins. The unit can be operated continuously, averaging 20 to 30 catch basins a day.

New Plumbing Fixture For Women's Rest Rooms

The Sanistand, new sanitary urinal for women's toilet rooms, is made of genuine vitreous china which makes it easy to clean. It is simple to install, for it fastens neatly and securely to the floor just as a water closet does.

Among its features are: ample bowl which is properly sized and shaped to make the Sanistand convenient to use; 18-inch height to offer utmost convenience; large water area for complete sanitation; and choice of flush valves which assures proper selection for every job.

The manufacturer, the American Radiator and Standard Sanitary Corp., Pittsburgh 30, Pa., reports that Sanistand is ideal for rest rooms everywhere—schools, railroad stations, bus terminals, sports arenas, theaters, office buildings, hospitals, and factories.

B. E. Beavin Establishes Consulting Office

Benjamin Everett Beavin, Sr., announces that he is now engaged in the practice of professional engineering at Linthicum Heights, Md.

Mr. Beavin was formerly associated with the J. E. Greiner Co., Baltimore, Md., and took an active part in the design and construction of the new Baltimore, Friendship, airport. He also was Assistant Chief Engineer of the Anapolis Metropolitan Sewerage Commission, and prior to that, Assistant Chief Engineer of the Anne Arundel County Sanitation Commission.

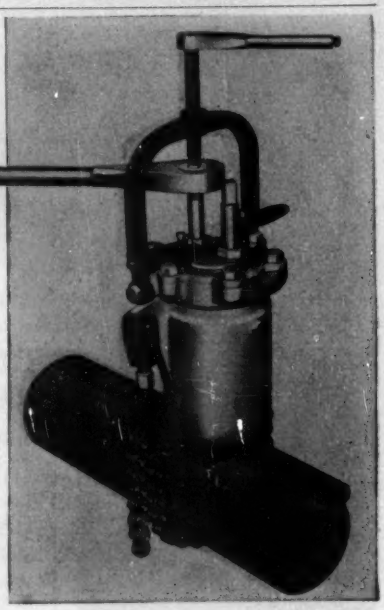
He is a member of Congress on Surveying and Mapping, and the Highway Research Board.

DESIGNED FOR THE MAN IN THE DITCH

HAYS

MODEL B TAPPING MACHINE

FOR INSERTING ALL STANDARD MAKES OF CORPORATION STOPS



FASTER . . . Less time required to make a tap • Two ratchet wrenches speed up operations • Head turns freely at all pressures

EASIER HANDLING . . . Shorter height • More rigid attachment to the main • More room in the ditch • Fewer operations—less physical effort required

EFFICIENT . . . Machine fully loaded, ready for operation before placing on the main • No disassembling to insert corporation stop • Flat link chain—positive grip on main

ECONOMICAL . . . Longer life of tools—more taps per tool • Renewable bearings and working parts • Designed to use short pattern taps and screw plugs

If you need a new or better tapping machine, write or wire for our representative to make an on-the-job demonstration of the new HAYS MODEL B Tapping Machine.

HAYS COPPER BRASS LEAD IRON WATER WORKS PRODUCTS HAYS MANUFACTURING CO. ERIE, PA.

SPECIALISTS IN THE REVALUATION OF REAL ESTATE, PERSONAL PROPERTY AND PUBLIC UTILITIES FOR LOCAL TAX EQUALIZATION PURPOSES

Illustrated Brochure Upon Request

THE J. M. CLEMINSHAW CO. APPRAISERS UNION COMMERCE BLDG., CLEVELAND FOUNDED 1923

Our Twenty-Eighth Year

"Public Appraisal Service is a Public Trust"

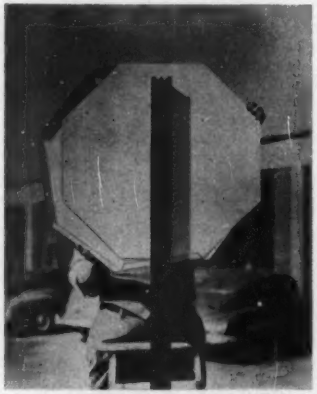
Allis-Chalmers Vice-President

W. A. Roberts, president of the Allis-Chalmers Mfg. Co., Milwaukee, Wis., announces that the board of directors elected Boyd S. Oberlink as a new vice-president. Mr. Oberlink has been serving as assistant to the vice-president in charge of the Tractor Division.

B. S. Oberlink

He joined the company in 1934 as an industrial-service man and demonstrator in the Tractor Division. In 1936, he was named assistant supervisor of the Allied Equipment Department in the same division; in 1940, manager of the division's Washington, D. C., office, and in 1943, returned to Milwaukee as assistant Industrial Sales Manager. Mr. Oberlink was named assistant to the executive vice-president in charge of the Tractor Division in 1946.

Inexpensive Traffic Sign



The new Grace Ez-On sign saves time and labor without taking an old one out of service. After bending the bottom flange of the marker, the workman slips it between the post and the old sign.

The Grace Sign and Mfg. Co. of St. Louis 3, Mo., announces a new and inexpensive standard traffic sign for which patents are now pending. Named the Ez-On, the sign is designed for use by county highway commissioners and engineers. It is constructed to slip over a standard steel road sign using the steel plate of the original sign as backboard. According to the manufacturer, advantages of Ez-On are its availability, low cost, reflectivity, durability, and simplicity of installation.

Made of 30-gauge steel, the sign's reflective qualities are provided by a crystal bead imbedded in a binder which covers a baked enamel coating. It is made in 18- and 24-inch sizes in standard square and octagon design.

Use "GUNITE," For durability & economy

FOR REPAIRING: Reservoirs, Dams, Filter Plants, Sewage Disposal Plants, Tanks, Stadiums, Bridges, Sea Walls, Breakwaters.

FOR LINING: Reservoirs, Swimming Pools, Tunnels, Sewers, Pipe, Concrete, Brick and Steel Tanks, Stacks; Bunkers, Irrigation Ditches.

FOR CONSTRUCTING: Prestressed Tanks, Stacks, Piles, Sidewalls and Roofs, Steel Encasements.

The proper maintenance and repair of structures is more important now than ever before.

Write for 48-page, illustrated booklet showing "GUNITE" at work.

Nationwide operation *Experienced Personnel*

PRESSURE CONCRETE COMPANY

NEWARK 5, N. J., 193 Emmet Street
CHARLOTTE, N. C., Liberty Life Bldg.
CHICAGO, ILL., 33 No. LaSalle Street
FLORENCE, ALA., South Court Street

WATER COSTS GO DOWN when you install CAISSON WELLS

Caisson Well means:

LIFELONG INSTALLATION and LOW WATER COST

Would you believe that water can now be produced at a cost of less than 2 cents per 1,000 gallons, including pumping, operation, maintenance and amortization?

LET US PROVE IT TO YOU

CAISSON WELLS, INC.

Ground Water Engineers and Contractors

33 W. 42nd St., New York 18, N. Y.

Heads Pennsylvania Engineers

J. Don Carpenter, vice-president of Gannett Fleming Corddry and Carpenter, Inc., consulting engineers and contractors, of Harrisburg, Pa., was elected president of the Pennsylvania Society of Professional Engineers, 228 N. Second St., Harrisburg. The election took place at the Society's 16th annual convention on May 19th in Allentown, Pa.

J. D. Carpenter

Previously, Mr. Carpenter served the organization as state director, chairman of the ethics and practice committee, and vice-president.

Industrial Power Sweeper

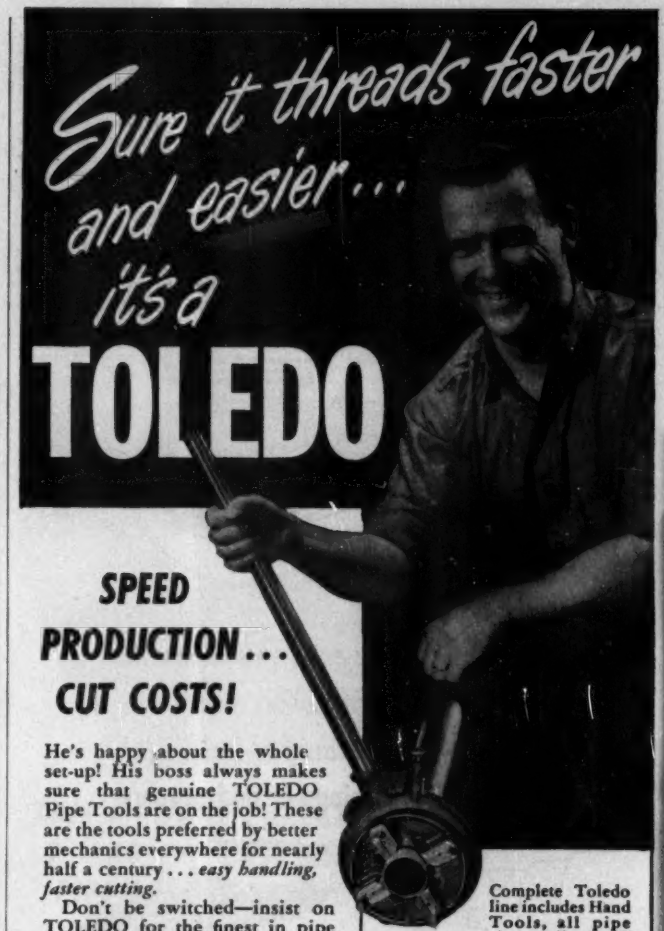
"One operation removes everything from dust to beer cans," is the statement issued by the Modern Mfg. Co., 160 N. Fair Oaks Ave., Pasadena 1, Calif., in announcing its modern industrial power sweeper.

Powered by a 4-cycle, 2 hp air-cooled gasoline engine, the machine is employed for sweeping auditoriums, maintenance garages, or any inside area where dust is a major problem. It also is used for sweeping streets and wet surfaces.

All debris, including heavy dust, is retained in a large metal catcher. Only the fine dust is drawn from the catcher through a ¾-inch opening the full width of the catcher and deposited in a large denim bag.

The machine is built of 20-gauge steel. The main reel has three heavy steel spiders on which are mounted 8 brushes. This assembly is mounted on a ¾-inch shaft supported by two floating pillar block bearings which are sealed against dust and equipped with zerk fittings.

Eight heavy Palmyra Fibre brushes, which clean paths 35 inches wide and 17 inches in diameter, are featured in this modern industrial power sweeper.

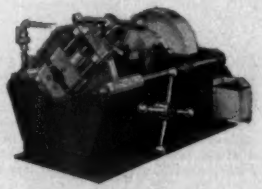


SPEED PRODUCTION... CUT COSTS!

He's happy about the whole set-up! His boss always makes sure that genuine TOLEDO Pipe Tools are on the job! These are the tools preferred by better mechanics everywhere for nearly half a century... *easy handling, faster cutting.*

Don't be switched—insist on TOLEDO for the finest in pipe threading and cutting tools and power machines! See how quickly Toledo dies take hold... how easily they cut smooth, accurate threads. Check the many advanced features of Toledo Pipe Tools... designed to speed the work and assure fast make-up and trouble-free joints. You'll be better satisfied with Toledo dependability! Write for catalog. The Toledo Pipe Threading Machine Co., Toledo, Ohio. New York Office: 165 Broadway, Room 1310.

Complete Toledo line includes Hand Tools, all pipe sizes, ⅛" to 12" and ¼" to 1" bolts. Power pipe machines, up to 2" and 4" capacity. (Above)—Toledo No. 1R Threader, 1" to 2" pipe.



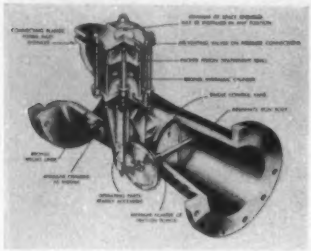
Toledo #999 2" pipe machine, wheel or knife cut-off.

RELY ON THE LEADER

TOLEDO

PIPE TOOLS... POWER PIPE MACHINES... POWER DRIVES

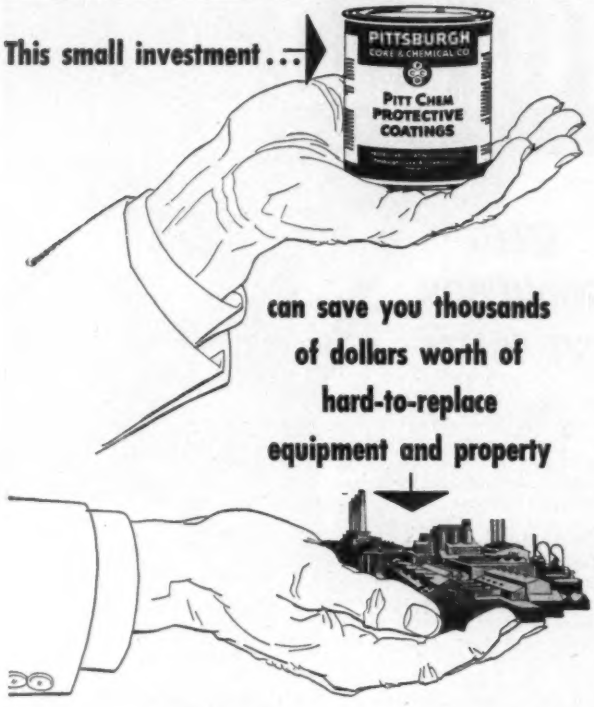
Hydraulic Controller



This is Builders' single-vane RCB controller.

New hydraulically powered controllers have been announced by Builders-Providence, Inc., 358 Harris Ave., Providence 1, R. I. These controllers, known as models RCA and RCB, have been designed especially for wash water service in water filter plants, raw water service in water supply lines, clear well pumping shut-off in the water treatment plant, sewage plant flow control, master and liquid level control, and special problems.

The manufacturer lists as features: high-control accuracy, ease of adjustment, simple design, small space requirements, low head loss, and automatic control. Bulletin 600-H2 describes the controllers.



Pitt Chem Protective Coatings guard your equipment with a tough, surface-protecting film . . . an impervious sheath against strong chemicals, high temperatures, atmospheric exposure and other destructive elements of industrial corrosion and contamination. *Pitt Chem* Coatings are completely uniform and dependable because they are laboratory-controlled from raw materials to finished product. You'll find the cost of safeguarding your equipment with *Pitt Chem* is surprisingly low. ● For more information, write for new booklet, "Control Corrosion Through Pitt Chem Protective Coatings."

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Seward H. Mott Establishes Planning Firm in Washington

Seward H. Mott, former director of the Urban Land Institute, research and educational organization in the land planning field, announces the establishment of his own consulting firm, Seward H. Mott Associates, in Washington, D. C.

S. H. Mott

As director of Land Planning for the Federal Housing Administration and later of the Urban Land Institute, Mr. Mott has guided city planning, residential development, and community shopping center projects across the country.

The new firm will provide consultation and planning services covering community development, residential subdivisions, shopping centers, industrial site development, city planning and zoning, landscape architecture, and allied fields.

Although he has resigned as director of the Urban Land Institute, Mr. Mott will continue to serve the ULI, both as secretary and as a member of the board of trustees.

Distinctive Air-Raid Horn Uses Only 23 cfm

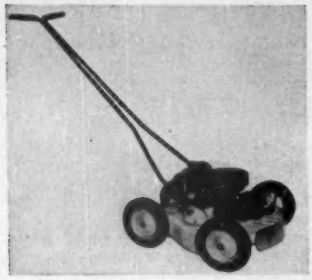
A merely audible noise never warned anybody. It must exceed the noise level. An effective attack warning system must, regardless of weather and other variable conditions, project a sound (1) instantly distinguishable from all other sounds, such as emergency vehicle horns, fire sirens, and the like, and (2) of such intensity that it is discernible above the local noise level.

The tonal quality of the sound emitted by our Keystone signalphone air-raid horn is freakishly distinctive. Activated by manual control or by remote electric solenoid control, the Signalphone projects this sound at *an intensity measuring* 114 *debicels at* 100 *feet* from the horn in a full radius of 360 degrees from the horn. With only about 28 cubic feet of free air per minute, it will produce any coded signals including those prescribed by the Federal Civil Defense Administration in full series on air pressure furnished by an ordinary gasoline station compressor without requiring any additional tank facilities. Such existing facilities are so numerous that in practically every community the locations can be carefully selected.

W. O. Wheary
Sales Manager
Keystone Signalphone Co.
5405 *Massachusetts Ave.*,
Washington 16, *D. C.*

Editor's Note: Mr. Wheary, during World War II, was Director of Communications of the National Office of Civilian Defense in Washington.

New Mower Has Wide Range Of Cutting Height Adjustment



Smoother cutting and easier handling is provided by the four-wheel mounting of the new gasoline-powered mower.

The release of its new Model 16G gasoline-powered mower is reported by Sensation Mower, Inc., Ralston, Nebr. Weighing 39 pounds, the machine has a four-wheel mounting which provides smoother cutting and easier handling.

According to the manufacturer, the mower has the widest range of cutting height adjustment of any 16-inch mower on the market. Mounted on four 8 by 1.75 wheels, it cuts a full 16-inch swath. Individually mounted axles provide height adjustment from ⅝ to 3½ inches. The firm's engineers have employed a single bar blade with supported loose tips for greater efficiency.

Power is supplied by a 1.2-hp Power Products gasoline engine. The rustproof cast aluminum high-strength alloy chassis has a removable front guard, and the handle is adjustable.

Named President Of Southern Alkali

E. T. Asplundh has been named president of the Southern Alkali Corp., a wholly owned subsidiary of the Pittsburgh Plate Glass Co., Fifth Ave., at Bellefield, Pittsburgh 13, Pa. Associated with the Pittsburgh Plate Glass Co.'s chemical operations since 1919, he has served as vice-president in charge of Pittsburgh's Columbia Chemical Division since 1940, and as vice-president of Southern Alkali since 1944.

Chairman of Southern's board of directors is Clarence M. Brown, board chairman of Pittsburgh Plate Glass since 1931 and a board of directors' member of Southern Alkali since the subsidiary's incorporation.

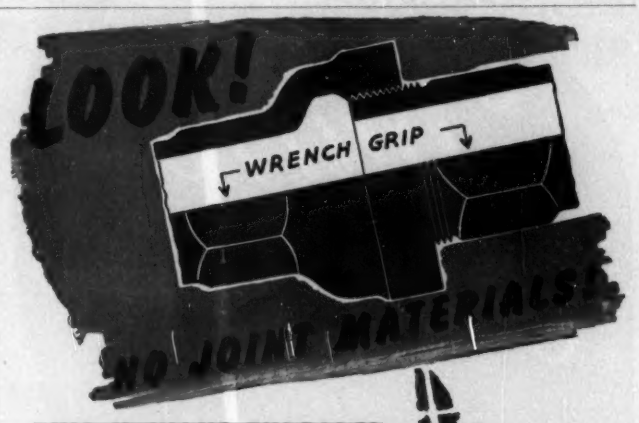
Continuing as directors of Alkali are: Harry B. Higgins, Harold F. Pitcairn, Raymond Pitcairn, and Dwight Means. Mr. Higgins will serve as executive committee chairman, and Mr. Means as a vice-president. New directors and officers are Leland Hazard, vice-president and general counsel, and W. I. Galliher, a vice-president. Richard B. Tucker and E. D. Griffin are additional directors.

The Pittsburgh Plate Glass Co. transferred its Columbia Chemical Division to the Southern Alkali Corp., which now operates chlorine, alkali, and related chemical producing plants at Corpus Christi, Texas; Barberton, Ohio; Natrium, W. Va.; Lake Charles, La., and Martlett, Calif.

Research Engineer Of Asphalt Institute

Bernard E. Gray, president of The Asphalt Institute, 801 Second Ave., New York 17, N. Y., has announced the appointment of John M. Griffith as engineer of research with headquarters at the New York office. Mr. Griffith succeeds to the post held until recently by Prevost Hubbard, retired, as head of the Institute laboratory and field research.

For the past eight years, Mr. Griffith has been with the Flexible Pavement Branch of the Waterways Experiment Station at Vicksburg, Miss. This is a research branch of the U. S. Corps of Engineers, operating directly under the Chief Engineers, Department of the Amy. The Flexible Pavement Branch is an agency of the Corps of Engineers responsible for research and development of problems related to flexible-type pavement, particularly as required for military airfields.



THIS McWANE THREADED 2" AND 2¼" CAST IRON PIPE SCREWS TOGETHER

One man alone can easily screw together 18-foot sections above ground. One side of a joint is held by a long handle wrench which lays on the ground, while he screws another 18-foot section into the threaded bell. The 18-foot sections are made up at our foundry by screwing together two 9-foot lengths of McWane Threaded Pipe. For extra strength, the joint is oversize 2½-inch male-and-female threaded. Common practice is to screw the joint together alongside the trench or on skids laid over the trench, then "snake" the line into the trench.

For complete information write to McWANE CAST IRON PIPE COMPANY, BIRMINGHAM 2, ALABAMA.

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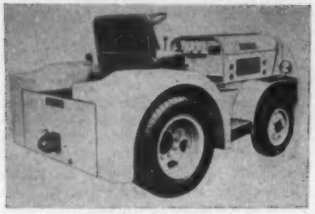
PIPE
Lasts for centuries

Tractor Designed For Airport Use



A new 12,000-pound drawbar pull tractor with torque converter designed to handle all airline tough pushing and pulling jobs is being manufactured by The Buda Co., Harvey, Ill. The machine also handles railroad, industrial, or military activities.

The new Model HA-120 Shop Mule tractor with a single-stage, closed-circuit type torque converter eliminates shock and undue strain, and smoothly applies maximum power, even when starting under full-load conditions. Powered by a 6-cylinder, 230 cubic inch displacement Buda Model 6-B-230 gasoline engine, the machine features safe four-wheel hydraulic brakes, special positive heavy-duty transmission with four forward one reverse speed, 17-gallon Protectoseal fuel tank, adjustable seat, and dual pneumatic-drive tires.

Finds South American Industry Vastly Improved

Amazement at the industrial progress of South America in the last decade was expressed by W. F. Rockwell, Jr., president of the Rockwell Mfg. Co., 400 N. Lexington Ave., Pittsburgh 8, Pa., who has returned from a three-week trip to the Latin countries where he studied the market potential for his firm's International Division.

W. F. Rockwell, Jr.

In 1941, he represented his company on an industrial exploration tour of the six South American nations under sponsorship of the National Research Council in cooperation with the Inter-American Development Commission in Washington.

Mr. Rockwell reports that their manufacturing and materials handling techniques are vastly improved since his first visit, and that labor seems more skilled and better trained.

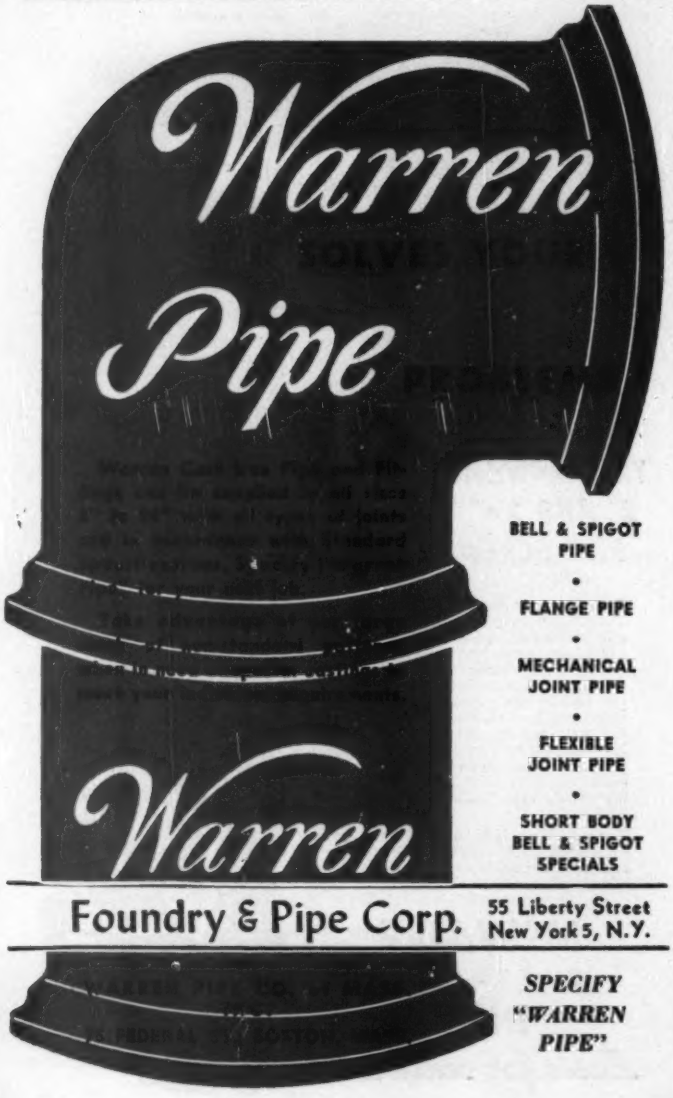
He announced that his concern has acquired the Ohlen-Bishop Mfg. Co., of Columbus, Ohio, which was organized in 1852 as a saw manufacturing firm. This company produces a complete line of mill and factory woodworking saws and saw blades consisting of circular, band, gang, and crosscut types. It also makes a trade line for carpenters, plumbers, electricians, and butchers, as well as a complete line for the home workshop.

Sirens for Attack Alarm

In connection with your coverage of air-attack signals, we feel it fair to point out that these sirens are a highly specialized item. Each installation has its own peculiarities and must be treated individually before satisfactory results are obtained. In some instances only one of the alarm medias is satisfactory. For instance, it has been found in some cases that a horn is the only satisfactory unit; in others, a whistle would give the best coverage. It generally is accepted, however, that an electric siren is the most satisfactory piece of equipment from several standpoints. In the first place, the siren is never used except as a warning signal. Being electrically operated, it does not require a stand-by employee to make sure it will operate or to aid in the actual operation. It relies only on the electrical system for its power.

We have been specializing for over 35 years in nothing but sirens and are now currently making along with our regular line a two-tone double-end siren in 5 and 7½ hp sizes. This particular two-tone design was especially developed for air-raid use.

RICHARD O. MILES
B & M Siren Mfg. Co.
765 E. Pico Blvd.
Los Angeles 21, Calif.



Not Afraid of Bumps

The Burch Obstructajust plow, adapted for city snow plowing, particularly where obstructions may be a hazard to ordinary plows. This unit will glide over such obstructions as manhole covers or other obstructions and instantly returned to normal working position automatically by a series of trip springs and the heavy-duty pull-back spring which brings the mold board back to normal working position. The machine is manufactured by The Burch Corp., 324 Thoman St., Crestline, Ohio.

On Infilco Technical Staff

Harmon E. Keyes, chemical and metallurgical engineer, formerly of Phoenix, Ariz., has joined the technical staff of Infilco, Inc., 2750 S. 12th Ave., Tucson, Ariz., as a special consultant. He will devote himself primarily to the further development of the autoxidatinn process—a field in which he holds many patents.

For several years, Mr. Keyes was engaged in electrolytic work. Twenty-six years ago, he became active in the research and development of copper extraction processes, particularly production of ferric sulphate and sulphuric acid on a commercial scale.

Mercury Lights on Alaskan Way in Seattle

Recently, 77 mercury-vapor luminaires were installed along 1.4 miles of Alaskan Way, a heavily traveled truck highway in Seattle, Wash. The 20,000-lumen General Electric units are mounted 30 feet above the pavement on Union Metal steel poles spaced an average of 95 feet apart. Railroad tracks compelled location of the units on one side of the 54-foot-wide highway. The average illumination level is about 1.8 footcandles.

Seattle's $4,000,000 street-lighting modernization program will improve more than 330 miles of arteries and highways within the city limits. It is said that mercury-vapor luminaires will be used throughout the city.

The luminaires are produced by the General Electric Co., Schenectady 5, N. Y., and the steel poles by the Union Metal Mfg. Co., Canton, Ohio.

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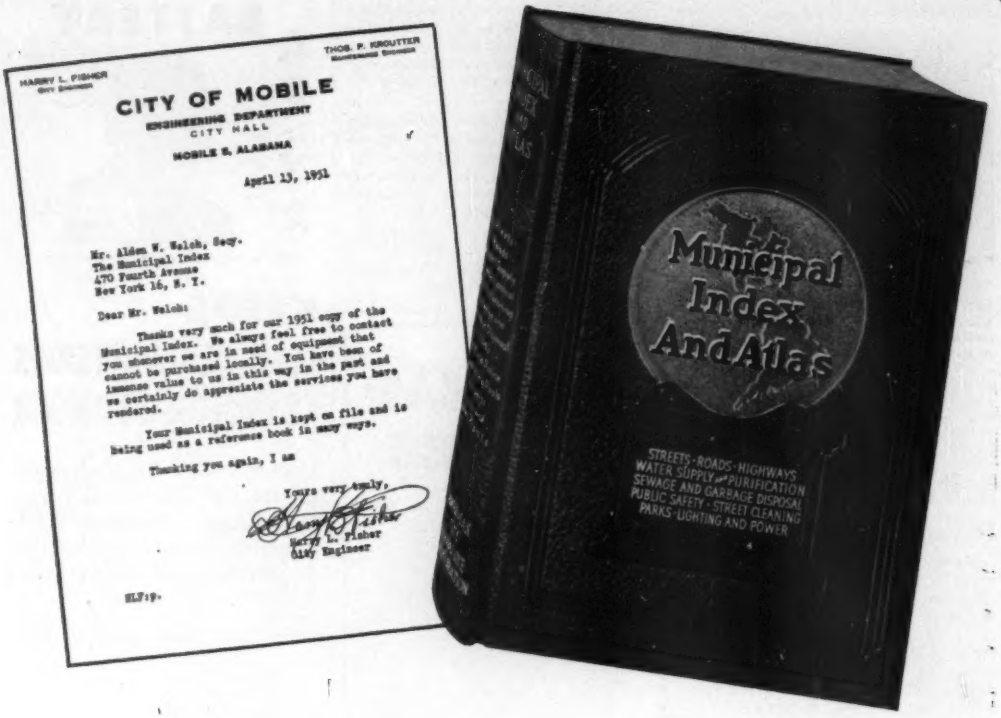
SOME TERRITORIES OPEN


HARRY L. FISHER
City Engineer
THOS. P. KROUTTER
Maintenance Engineer
CITY OF MOBILE
ENGINEERING DEPARTMENT
CITY HALL
MOBILE 8, ALABAMA
April 13, 1951
Mr. Alden W. Welch, Secy.
The Municipal Index
470 Fourth Avenue
New York 16, N. Y.
Dear Mr. Welch:
Thanks very much for our 1951 copy of the Municipal Index. We always feel free to contact you whenever we are in need of equipment that cannot be purchased locally. You have been of immense value to us in this way in the past and we certainly do appreciate the services you have rendered.
Your Municipal Index is kept on file and is being used as a reference book in many ways.
Thanking you again, I am
Yours very truly,
Harry L. Fisher
City Engineer
HLF:p.
Municipal Index And Atlas
STREETS · ROADS · HIGHWAYS
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SEWAGE AND GARBAGE DISPOSAL
PUBLIC SAFETY · STREET CLEANING
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Yours may be one of the municipalities whose officials not only contact directly the manufacturers advertising in the Municipal Index but who also write, in instances, to the Municipal Index for specific assistance in locating suppliers of municipal equipment and materials.

The 1951 INDEX had been out only a few weeks when we had heard from officials of over 200 towns and cities who wanted information on a couple of hundred types of products.

42 cities inquired about street sweepers
27 cities about fire hydrants
26 cities about garbage trucks
16 cities about sewage-gas and dual-fuel engines
17 cities about lawn mowers
31 cities about air-raid sirens
63 cities inquired about 20 kinds of pipe and maintenance tools

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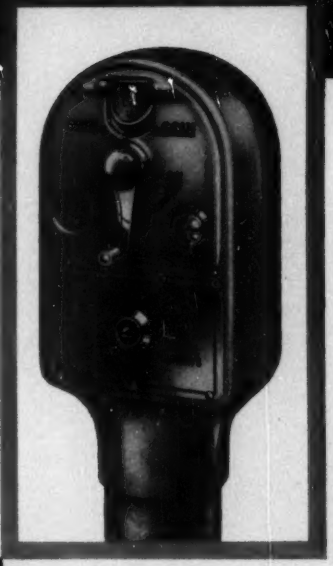

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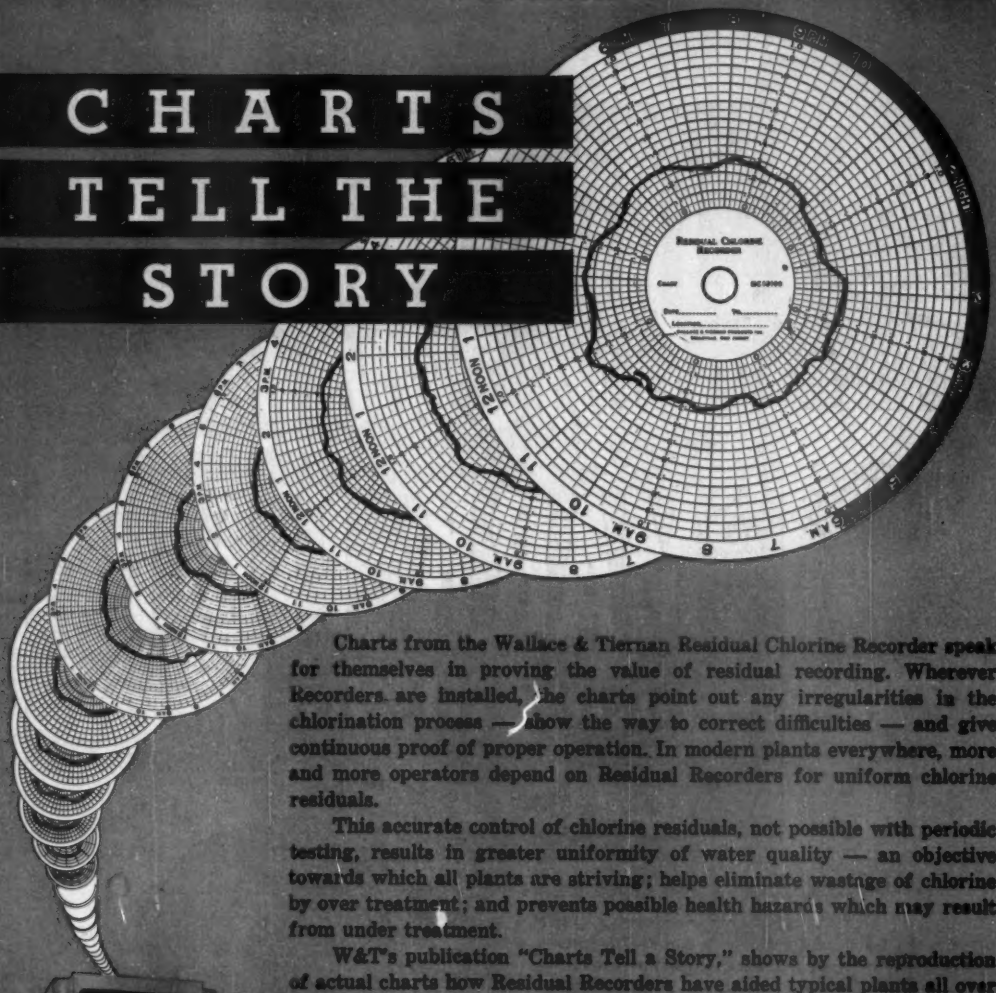

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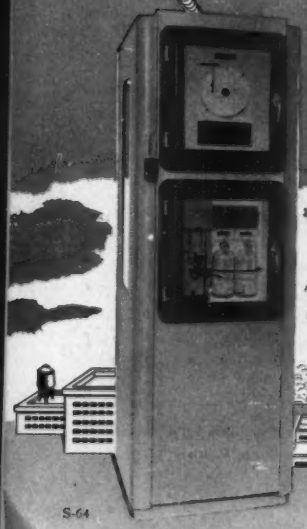

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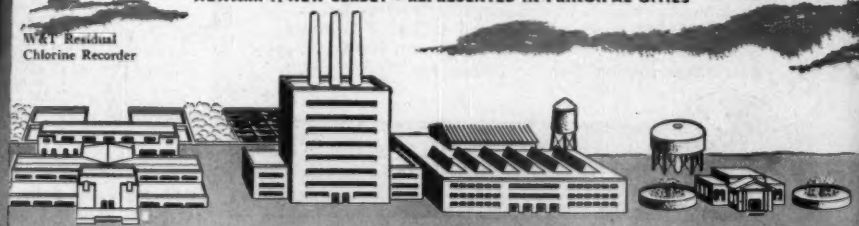

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